PB-227 027

AUTOPSY PROTOCOLS OF HUMAN CASES

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Utah Valley Hospital
Provo, Utah

August 1957

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PB 227 027

REPORT

on

THE EFFECT OF ATMOSPHERIC FLUORIDES ON MAN

Cooperating Agencies and Personnel

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AUTOPSY REPORT

CASE # 1

AUTOPSY NUMBER: U.S. - 35

AGE: 71

DATE OF DEATH: October 27, 1955

DATE OF AUTOPSY: 5:00 p.m. October 27, 1955

PROSECTOR: Richard A. Call, M. D.

CHIEF DIAGNOSIS:

1. Chronic peptic ulcer of the stomach with perforation.
2. Acute purulent peritonitis.
3. Obesity, marked.
4. Exostosis of the calvarium.
5. Fatty infiltration of the myocardium.
6. Fatty metamorphosis of the liver, moderate to marked (3+).
7. Fatty infiltration of the pancreas, marked.
8. Leiomyoma uteri.

COMMENT:

The immediate cause of death in this case was the result of the perforation of the chronic peptic ulcer of the stomach with resulting acute purulent peritonitis.

The other changes, while of interest, added little to the final demise.

GENERAL DESCRIPTION:

This is the body of a well developed, obese, white female, who appears the stated age. It measures 65" in length and weighs an estimated 200 pounds. The scalp is covered with long, grey, yellow hair. The scalp is not remarkable. The pupils are round and equal, measuring 5 mm. in diameter. The irides are brown. The nares are not remarkable. The naso-pharynx contains a small quantity of brown liquid. There is edentia totalis. An upper denture is in place. The ear canals are dry. Innumerable bruises are scattered about the arms, elbows, forearms, and chin. A 2 cm. laceration lies above and just lateral to the left eye brow. The soft tissues around the left eye are discolored purple. An excoriation measuring 2 cm. in diameter lies just distal to the left elbow. Plantar warts are present on the sole of each foot. A clavus lies on each great toe. There is moderate hirsutism of the face. The breasts are moderately pendulous. The abdomen is protuberant. The external genitalia are not remarkable. The hair distribution is that of a normal adult female.

PRIMARY INCISION:

The usual Y shaped incision is made revealing a 7 cm. layer of fat over the lower abdominal wall. The muscularis is moderately well developed and is moist. The blood is liquid and is dark red.

SEROUS CAVITIES:

The peritoneal space contains about 2,000 cc. of green, grey purulent liquid. Loculated cavities of purulent liquid are scattered about the right and left upper quadrants. Undigested food and bile are also abundant. The omentum is concentrated in the upper one half of the abdomen. Fibrinous adhesions lie between the omentum and the anterior abdominal wall. There is congestion and beginning exudation of the lateral peritoneal surface.

The right pleural space contains a single fibrous adhesion between the subapical portion of the upper lobe and the parietal pleura. No adhesions are noted in the left pleural space, however, there are a few cc. of yellow fluid. Fibrinous adhesions lie between the diaphragmatic surface of the left lower lobe and the diaphragm. Here, a plastic exudate covers the basilar portion of the lower lobe.

The pericardial space contains a few cc. of straw colored fluid. The heart is normal in contour and position. The diameters of the heart in situ are as follows: Greatest transverse diameter, 15 cm; base to apex, 17 cm; transverse diameter to base 19 cm; A-P diameter, 7 cm.

HEART:

The heart weighs 440 gm. A thick layer of fat covers the myocardium. Multiple sections through the myocardium reveal fatty infiltration, most marked in the right ventricle. Marked congestion is also present; otherwise no gross abnormalities are noted. The left ventricular myocardium averages 12 mm. in thickness and the right ventricular myocardium averages 4 mm. in thickness. The chambers are of normal size. The interventricular and interauricular septa are intact. The auricular appendages are empty and are essentially normal. The valves are grossly normal. The circumferences at the rings are as follows: pulmonic 7 cm; tricuspid 12 cm; mitral 8 cm; and aortic 6.5 cm. Multiple sections made through the coronary arties reveal only slight focal thickening. The aorta and great vessels show slight atherosclerosis; otherwise, no gross abnormalities are noted.

LUNGS:

The right lung weighs 470 gm. The pleura is smooth, shiny and is salmon pink to red. There is moderate decreased crepitus throughout the lower lobe. Multiple sections reveal moderate congestion in the dependent portions; elsewhere, the parenchyma is salmon pink mottled with anthracotic pigment. There are no areas of consolidation.

The left lung weighs 370 gm. and is similar to the right.

Moderate quantities of green mucus and undigested food lie within the trachea and bronchi. Aspirated substance is not found in the bronchioles.

GASTRO-INTESTINAL:

There is autolysis of the distal one-third of the esophogeal mucosa. Here, there is focal epitheliosis. The stomach contains a small quantity of green mucus and fragments of undigested food. A 2.5 cm. defect liesin the anterior wall at the pylorus. The margins are elevated red and slightly undermined. The ulcer measures 3 cm. in diameter. The base is grey yellow. On section, the surfaces are grey mottled with yellow. The adjacent omentum and fatty tissue shows marked induration and congestion. The surfaces are covered by a plastic exudate. Here the gastric wall measures 1.5 cm. in thickness. Elsewhere the gastric mucosa is not remarkable. The rugal pattern is intact. The small bowel contains bilestained chyme and the large bowel contains copious quantitiesof firm brown fecal matter. No abnormalities are noted in the bowel wall or mucosa.

LIVER:

The liver weighs 1500 gm. The capsule is covered by a plastic exudate. On section, the parenchyma bulges beyond the capsule. The normal lobular pattern is identified. The parenchyma is tan to red mottled with innumerable foci of yellow. The biliary radicles and portal vein are not remarkable.

The gall bladder contains an estimated 50 cc. of thick mucoid bile. The wall and mucosa are not remarkable. The common and cystic ducts are patent.

GENITO-URINARY:

Each kidney weighs 100 gm. The capsules strip with ease revealing smooth, shiny, red tan surfaces. On section, the parenchyma bulges slightly beyond the capsules. The cortico-medullary lines are sharp. The cortices, are tan and the medulla is purple. The peri-pelvic fat is not remarkable. The calyces, pelvis, and ureters are not remarkable.

The urinary bladder is empty. No gross abnormalities are noted.

The fallopian tubes and ovaries are not remarkable.

The uterus is markedly asymmetrical. On section, the myometrium contains innumerable well circumscribed nodular masses measuring up to 5 cm. in diameter. These lie sub-mucosal, sub-serosal and intramural. Flattened polypoid masses lie within the endometrial cavity. The largest measures 3 x 1.5 x.5 cm. Cystic foci are sprinkled about the cervix. No other gross abnormalities are noted.

PANCREAS:

The pancreas weighs 180 gm. and shows marked fatty infiltration. Otherwise, no abnormalities are noted.

THYROID:

The thyroid weighs 40 gm. The lobes are symmetrical. On section, the parenchyma is tan purple and shows a normal colloid sheen. There is no evidence of nodularity.

ADRENALS:

Normal in size, shape, color and consistency.

PITUITARY:

Normal in size, shape, color and consistency.

SPLEEN:

The spleen weighs 160 grams. The capsule is partially covered by a plastic exudate. Elsewhere, it is purple. On section, the parenchyma is moderately firm and is red purple mottled with grey.

LYMPH NODES:

Not remarkable.

BONE MARROW:

Marrow taken from the vertebra, rib and sternum show no gross abnormalities.

HEAD:

The scalp and calvarium show no abnormalities externally. The paranasal sinuses, mastoid air cells and middle ears are normal. Lying on the inner surface of the right frontal bone is a mullberry shaped exostosis, measuring 1.5 cm. in diameter. There is a similar exostosis lying adjacent to the crista galli in the right anterior fossa. This lesion measures less than 1 cm. in diameter. There is marked uneven thickening of the dome of the calvarium. It varies in thickness from 5 mm. to 15 mm. The meninges are not remarkable, except for focal calcification of one of the Pacchiorian bodies in the midline.

BRAIN:

The brain weighs 1150 gm. The cerebral hemispheres are symmetrical. There is slight edema and congestion of the pia arachnoid. The arteries are not remarkable. Frontal sections made through the cerebral hemispheres, cerebellum and brain stem reveal no gross abnormalities.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal moderate to marked fatty infiltration of the R. V. myocardium. Arterioles and arteries show only slight intimal thickening. There is slight "lipochrome pigmentation" of the myocardial fibers.

Lungs:

Sections reveal slight to moderate focal atelectasis. There is focal anthracosis. The arteries and arterioles are not remarkable. There is some desquamation of the bronchiolar epithelium.

Liver:

Sections reveal moderate to marked (3 +) fatty metamorphosis. There is slight passive congestion. The periportal fibrous tissue shows slight lymphocytic infiltration. The arteries and arterioles are not unusual.

Pancreas:

Sections reveal marked fatty infiltration; otherwise no abnormalities are noted.

Bowel:

Sections through the ulcer reveals extensive destruction of the mucosa and submucosa. In some areas, it extends through the muscularis into the serosa. The base of the ulcer is covered by a layer of necrotic debris, beneath which, lies a zone of dense fibrosis. Subjacent to this zone is loose connective tissue showing lymphocytic and neutrophilic infiltration. The muscularis shows complete replacement by fibrous tissue. The adjacent mucosa shows lymphocytic and neutrophilic infiltration. The serosa shows marked fibrous thickening. Fibrinopurulent exudate covers the serosa. Here, there is focal deposition. The serosal mesothelium is absent.

Sections through the stomach elsewhere shows slight chronic inflamation of the mucosa, with beginning autolysis. The serosa is partially covered by fibrino-purulent exudate. In some areas, the inflammatory cells extent deep into the muscularis.

Kidneys:

Sections reveal parenchymatous degeneration. A few arteries and arterioles show slight to moderate intimal thickening. There is moderate congestion.

Uterus:

Sections reveal well circumscribed nodular masses composed of interlacing bundles of fibro-muscular tissue. These lie intramural and submucosal. The endometrium is atrophic. Only an occasional straight gland is identified. A few cysts are present. In some areas, only the surface epithelium remains.

Thyroid:

Sections reveal slight lymphocytic infiltration at the periphery. No other abnormalities are noted.

Adrenals:

Sections reveal slight to moderate intimal thickening of some of the pericapsular arteries and arterioles.

Pituitary:

Not remarkable.

Brain:

Sections reveal slight congestion. A few arteries and arterioles show slight intimal thickening. Those showing the most marked change lie within the pia.

Calvarium:

Sections reveal thickened vessels in the periosteum. The bony trabeculae are broad. The bone is mature and shows no histologic abnormalities. An exostosis is present in one area. It is histologically indistinguishable from the previously described calvarium.

Sternum:

Sections through the sternum reveal normal periosteum and cortex. The bony trabeculae are mature. The marrow spaces are filled with cells. There is a slight granulocytic-series hyperplasia. Megakaryocytes are identified.

Vertebra:

Similar to the sternum.

Rib:

The skeletal muscle and periosteum are not remarkable. The trabeculae and cortex are normal. Granulocytic cells are moderately abundant.

CASE #2

A-205-55

AGE: 51

DATE OF DEATH: 12:15 am, November 22, 1955

DATE OF AUTOPSY: 8:00 a.m., November 22, 1955

PROSECTOR: Richard A. Call, M.D.

CHIEF DIAGNOSIS:

1. Rheumatic heart disease with mitral, tricuspid, and aortic stenosis.
2. Cerebral infarction, old and recent.
3. Meningiomata (2) 1.0 and 1.5 cm.
4. Renal infarcts, old, healed.
5. Splenic infarcts, old, healed.
6. Myocardial infarct, old, healed.
7. Pulmonary edema with early bronchopneumonia.
8. Nodular cirrhosis of the liver.
9. Nodular thyroid.
10. Fatty infiltration of the pancreas.
11. Arterio and arteriolosclerosis, slight to moderate.

COMMENT:

The immediate cause of death in this case is undoubtedly due to a combination of factors. The most important, however, being the rheumatic heart disease with strenosis of the three valves. Auricular fibrillation with formation of mural thrombi undoubtedly resulted in the infarcts of the brain, spleen and kidneys. The fibrosis of the myocardium was probably on an arteriosclerotic basis and not on a thrombotic basis.

The pulmonary edema with early bronchopneumonia undoubtedly added significantly to the final demise.

The cirrhosis of the liver is of the peri-portal type and probably not related to the heart failure. There is no evidence of long standing biliary duct obstruction. The clinical history gives no clue as to the etiologic factors involved in this entity. The meningiomas (2) are of interest but were too small to have resulted in many clinical symptoms, however, there was an indentation of the brain at the site of the small tumor. They added nothing to the final episode.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white female who appears the stated age. It weighs an estimated 130 pounds and measures 67" in length. The scalp is covered with long black hair showing slight graying at the temples. The ear canals are dry. The pupils are round and equal. The nares are not remarkable. Embalming precludes examination of the nasopharynx. An embalmer's incision lies at the base of the neck on the right side. A brown pigmented papillary lesion measuring 5.0 mm. in diameter lies on the helix of the right ear. A focus of brown discoloration measuring 2.5 x 2.0 cm. lies in the right lower quadrant of the abdomen. Several 5.0 mm. sized nevi are scattered about the pubis. A mulberry shaped papilloma measuring 1.5 cm. in diameter is attached to the right side of the perineum. The stalk measures 5.0 mm. in diameter. The external genitalia are essentially normal. The hair distribution is that of a normal adult female. The breasts are normal. Several bruises are scattered about the lower legs. The largest measures 4.0 cm. in diameter and lies on the lateral aspect of the right knee. The veins over the abdominal wall and extremities are prominent.

Primary incision:

The usual Y shaped incision is made revealing a 2.0 cm. layer of yellow fat over the anterior lower midline. The musculature is dark red, well developed and moist.

Serous Cavities:

The Peritoneal space contains no excess of free fluid. The organs lie in normal relationship. The appendix is present and is not remarkable. The liver is finely and coarsely nodular and extends 13.0 cm. beneath the xiphoid process in the deep midline and 6.0 cm. beneath the costal cartilage in the right midclavicular line. The margins are rounded. There is no evidence of a hiatal hernia. The right leaf of the diaphragm lies at the level of the 6th intercostal space and the left leaf lies at the level of the 5th rib.

The pleural spaces contain no excess of free fluid. No adhesions are noted.

The pericardial space contains a few cc. of clear straw colored fluid. The heart is enlarged and lies in a transverse position. The apex lies in the left anterior axillary space. The diameters of the heart in situ are as follows: greatest transverse diameter, 18.0 cm; transverse diameter at base, 14.0 cm; base to apex, 13.0 cm. and AP diameter, 9.0 cm.

Heart:

The heart weighs 570 grams. A 1.0 cm. layer of fat covers the coronary arteries at the base. Multiple sections reveal extensive fibrous replacement of the myocardium in the anterior left ventricle. This area measures 4.0 cm. in its greatest diameter and measures 1.0 cm. in thickness. Elsewhere, the left ventricular myocardium averages 1.5 cm. in thickness. The right ventricular myocardium is not remarkable and averages 0.6 cm. in thickness. Sections through the interventricular septum are not remarkable. There is marked disention of both auricles. The auricular appendage on the left contains adherent pre-mortem thrombus. The right auricular appendage contains a few fragments of similar pre-mortem thrombus. Otherwise, the auricular appendages are not remarkable.

The ventricles are normal in size. The pulmonic valve is not remarkable. There is fusion of the cusps of the tricuspid valve with some thickening of the leaflets. There is no evidence of calcification. The mitral valve shows a "fish mouth deformity" due to extensive fibrosis. There is no evidence of calcification or vegitation. The aortic valve shows fusion of the cusps with marked fibrous thickening and nodulation of the leaflets. The circumferences of the valves at the rings are as follows: Pulmonic, 7.0 cm.; Tricuspid, 7.0 cm.; Mitral, 1.5 x 0.5 cm.; Aortic, 5.5 cm.

Sections through the coronary arteries show slight to moderate focal atherosclerosis. There are no areas of total occlusion. Significant area of narrowing are not identified.

The great vessels show focal atherosclerosis. The aorta shows slight atherosclerosis becoming more marked as it is descended.

Lungs:

The right lung weighs 750 grams. There is moderate decreased crepitus throughout all lobes. The pleura is red mottled with purple. On section copious quantities of hemorrhagic and yellow frothy liquid exudes freely from the surfaces. The parenchyma is red mottled with irregular foci of purple. Consolidation is not identified.

The left lung weighs 1000 grams. There is marked decreased crepitus. The pleura is dark red to purple. On section the upper lobe is a homogeneous red purple. Copious quantities of straw colored and hemorrhagic liquid exudes freely from the parenchyma.

The pulmonary arteries and veins are not remarkable.

The trachea, bronchi and bronchioles contain copious quantities of frothy yellow liquid.

Liver:

The liver weighs 1530 grams. The surface is tawny and is finely and coarsely nodular. The nodules vary in size from 1.0 to 5.0 mm. The margins are moderately rounded. On section the parenchyma is replaced by innumerable tawny nodular masses varying in size from 1.0 to 10.0 mm. The intervening parenchyma is tan to red. The portal vein is patent.

The gallbladder contains about 5.0 cc of thin yellow green bile. The common and cystic ducts are patent.

Pancreas:

The pancreas weighs 110 grams and is normal in size, shape, color and consistency.

Gastro-intestinal tract:

The esophagus is not remarkable.

The stomach contains a few cc. of undigested food and mucus. The mucosal and rugal patterns are normal. The duodenum contains bile stained chyme. The large bowel contains firm brown fecal matter. There are no abnormalities noted in the bowel wall or mucosa.

Genito-urinary:

The right kidney weighs 70 grams. The capsule strips with moderate difficulty revealing an irregular, nodular surface. Innumerable depressions, U and V shaped, are scattered about.

The depressions are grey and the elevations are tan. These scars vary in size from 5.0 mm. to several cm. In some areas constricting scar tissue almost divides the kidney into an "hour glass" shape. On section the cortico-medullary line is sharp in some areas. Elsewhere, it is obliterated due to fibrosis. The cortex varies in thickness from 4.0 to 9.0 mm. and is finely granular and tan. The medulla is purple. The calyces, pelvis and ureter are not remarkable.

The left kidney weighs 100 grams and is similar to the right.

The urinary bladder is constricted. No abnormalities are noted in the wall or mucosa.

The uterus measures 9.0 x 5.0 x 4.0 cm. Sections through the myometrium and endometrium reveal no abnormalities. The cervix is not remarkable.

The fallopian tubes are normal. A few parovarian cysts measuring up to 1.0 cm. in diameter lie on the left side.

The ovaries show bilateral senile atrophy. The larger measures 1.5 cm. in its greatest diameter.

Spleen:

The spleen weighs 200 grams and is grossly irregular in outline due to well healed scars. On section the surfaces are tan to purple. The Malpighian corpuscles are easily visible.

Lymph nodes:

Not remarkable.

Thyroid:

The thyroid weighs 100 grams. It is grossly irregular due to nodulation. The nodules vary in size from 1.0 to 3.0 cm. On section the parenchyma shows a normal colloid sheen. The nodules are well circumscribed and encapsulated. Some show focal hemorrhage.

Adrenals:

Normal in size, shape, color, and consistency.

Pituitary:

Normal in size, shape, color, and consistency.

Bone:

Sections through the 6th rib, sternum, lumbar and sacral vertebrae, and right ilium reveal no gross abnormalities. The marrow is dark red and abundant.

Sections through the calvarium show no gross abnormalities.

Head:

No abnormalities are noted in the scalp or calvarium.

A hard nodule is attached to the dura mater. It measures 1.5 cm. in diameter and lies in the posterior fossa. It is adherent to the calvarium but is easily peeled away. The sectional surfaces are grey and appear whorled. A second mass is moderately soft and friable and lies in the midline in the middle fossa. It measures about 1.0 cm. in diameter.

No other abnormalities are noted in the meninges.

The cerebro-spinal fluid is clear.

The brain weighs 1340 grams. The cerebral hemispheres are symmetrical. A yellowish brown area of depression lies in the midportion of the right parietal lobe. It measures 4.0 cm. in diameter. Here, the gyri show focal atrophy. A similar focus of brownish discoloration measuring 1.0 cm. in diameter lies on the lateral aspect of the right cerebellum. An indentation measuring about 1.0 cm. in diameter lies in the left cerebellum. This is the result of the previously described mass in the meninges.

Multiple sections taken 1.0 to 1.5 cm. apart through the cerebral hemispheres reveal softening and necrosis with focal hemorrhage throughout the basal ganglia on the left side. However, the pons is spared. The ventricular system is symmetrical and shows no evidence of softening or necrosis.

Sections through the brain stem and cerebellum reveal no additional abnormalities.

MICROSCOPIC DESCRIPTION:

Heart:

Sections through the left ventricle reveal extensive fibrous replacement of the myocardium. Here, there is slight round cell infiltration in and about the fibrous tissue and in the perivascular areas. These cells are primarily lymphocytes with an occasional histiocyte. The arteries and arterioles show slight to marked intimal thickening with significant luminal narrowing. Sections elsewhere reveal similar changes in the arteries and arterioles. Sections through the right ventricle reveal similar but less marked changes plus slight fatty infiltration.

Sections through the valves reveal marked hyaline thickening with focal calcification. In some areas there is focal hyaline and basophilic degeneration, most marked at the valve base. Lymphocytes and histiocytes are lightly sprinkled about. In some areas the fibrous masses show increased vascularity and focal calcification. The arteries and arterioles show intimal thickening. Sections through the aorta reveal slight subintimal atherosclerosis.

Lungs:

Sections reveal extensive edema with beginning neutrophilic infiltration. The bronchioles contain edema fluid and neutrophils. The mucosa show partial desquamation. There is slight intimal thickening of some of the arteries.

Liver:

Sections reveal marked distortion of the lobular architecture by broad bands of connective tissue extending from peri-portal triad to triad. These contain hyperplastic biliary ducts and slight to moderate numbers of lymphocytes. In some areas, nests of intact cord cells are trapped by the dense fibrous tissue. In some areas the sinusoids are distended, most marked in the central zones. Some of the arteries show slight intimal thickening.

Pancreas:

Not remarkable except for slight fatty infiltration.

Genito-urinary:

Sections of the kidneys reveal uneven fibrous thickening of the capsule. The subjacent cortex shows extensive atrophy, fibrosis, hyalinization and focal lymphocytic infiltration. Only an occasional intact glomerulus is identified. The others appear in varying stages of atrophy and fibrous replacement. The tubules are almost totally destroyed, however, a few nests showing some distention are identified. The arteries and arterioles show marked intimal thickening with almost total luminal obliteration. Many show extensive hyalinization. Sections through the medulla show interstitial fibrosis with disorganization of the tubular epithelium. The peri-pelvic fibro-fatty tissue shows slight lymphocytic infiltration. The vessels show similar changes to those previously described. In other renal sections there is only slight fibrous thickening of the capsule with irregular foci of fibrosis scattered about the cortex. Here, there is dense lymphocytic infiltration. The adjacent tubular structures show atrophy. Histologically, normal glomerulae are abundant, however, many show fibrosis and hyalinization. In some sections these scars are wedge shaped.

Sections through the uterus reveal senile atrophy of the endometrium. Thick walled vessels are scattered about the myometrium. Otherwise, no abnormalities are noted.

Sections through the ovaries reveal no histologic abnormalities.

Sections through the fallopian tubes reveal some fibrosis of the wall with increased vascularity. Some of the vessels show intimal thickening with hyalinization with significant luminal narrowing.

Spleen:

Sections reveal focal fibrosis with replacement of the parenchyma. These scars extend from the capsule deep into the parenchyma. There is depletion of the red cell element. Some of the arteries and arterioles show moderate intimal thickening with hyalinization.

Thyroid:

Sections reveal a nodular thyroid showing focal colloid degeneration with cyst formation. There is no evidence of malignant change.

Adrenals:

Not remarkable.

Pituitary:

Not remarkable.

Meningeal masses:

Sections through the two meningeal masses reveal relatively cellular tumor which is composed of spindle shaped cells showing interlacing. Psammosa bodies are abundant. There is some central degeneration with loss of cellular detail in the larger mass. Other sections reveal moderate increased vascularity. These tumors are well circumscribed.

Brain:

Sections through the basal ganglia on the left side show extensive perivascular and interstitial hemorrhage with beginning gliosis, degeneration and necrosis. In other sections there is pervascular lymphocytic infiltration. Sections through the cortex reveal far advanced degeneration and necrosis with marked macrophagic infiltration. Here, the parenchyma shows marked condensation with loss of the normal histologic architecture. Some vessels show intimal thickening. Here, there is extensive subarachnoid edema.

Sternum:

Sections reveal histologically normal muscle and periosteum. The cortex and trabeculae are mature and show no abnormalities. The marrow spaces contain a relatively normal marrow.

Vertebra:

Sections reveal focal calcification of the periosteum. The cortex is somewhat uneven in thickness and shows some hypercalcification near the margin. The cortex and bony trabeculae are mature. The marrow is not histologically abnormal.

Rib:

The periosteum is not remarkable. The cortex and trabeculae are essentially normal. The marrow is not remarkable.

Iliac crest:

Sections reveal histologically normal skeletal muscle and periosteum. The latter shows an occasional focus of bone formation deep within the connective tissue. The cortex varies somewhat in thickness. The trabeculae are not remarkable. The marrow shows a slight preponderance of the fatty element.

CASE # 3

AUTOPSY NUMBER: U.S.-36

AGE: 81

DATE OF DEATH: November 30, 1955

DATE OF AUTOPSY: 2:00 p.m. December 1, 1955

PROSECTOR: Richard A. Call, M.D.

CHIEF DIAGNOSIS:

1. Massive pulmonary embolism (site of origin, right femoral vein).
2. Bronchopnemonia with abscess formation.
3. Arterio and arteriolosclerosis, slight to marked.
4. Aspiration of gastric contents with focal autolysis of pulmonary parenchyma.

COMMENT:

The cause of death in this case was the direct result of massive pulmonary embolism. The embolus arose in the right femoral vein. Both pulmonary arteries were totally occluded.

The extensive bronchopneumonia was limited to the right lower lobe. Here, an abscess cavity occupied most of the lobe. This may have arisen secondary to aspiration, or bronchopneumonia. The exostoses of the calvarium were interesting, but added nothing to the final demise.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished, obese, white female, who appears the stated age of 81. It measures 65" in length and weighs an estimated 175 lbs. The scalp is covered with grey to brown hair. The ear canals are dry. There is edentia totalis. The nares are normal. The irides are blue and pupils are round and equal. There is marked distention of the neck veins, most marked on the right side. The breasts are moderately pendulous, but are otherwise not remarkable. A 5 cm. sized bruise lies in the right anti-cubital fossa. There is marked subcutaneous edema, most marked over the left lower extremity. The external genitalia are not remarkable. There is mottled purple discoloration of the right lower leg.

PRIMARY INCISION:

The usual Y shaped incision is made revealing a 4 cm. layer of yellow lobulated fat. The musculature is dark red, well developed and moist.

SEROUS CAVITIES:

The organs lie in normal relationship. The liver does not extend beneath the costal cartilages. The margin is moderately acute. The right leaf of the diaphragm lies at the level of the 5th rib and the left leaf lies at the level of the 4th intercostal space.

No excess of fluid lies in the pleural spaces. A few fibrous adhesions are present on the right side. Fibrinous adhesions lie over the postero-lateral aspect of the lower lobe. The pericardial space contains a few cc. of straw colored fluid. The heart lies in normal position and is normal in contour. The diameters of the heart in situ are as follows: greatest transverse diameter, 15 cm.; base to apex, 11 cm.; transverse diameter at the base, 10 cm.; and A-P diameter, 8 cm.

HEART:

The heart weighs 480 gm. Multiple sections reveal a moderately soft and friable red tan myocardium. The left ventricular myocardium averages 12 mm. in thickness and the right ventricular myocardium averages 3 to 4 mm. in thickness. The interventricular and interauricular septa are intact. The auricular appendages are empty and are esentially normal. The valves are grossly normal. The circumferences at the rings are as follows: Pulmonic 8 cm; Tricuspid 11 cm.; Mitral, 9 cm.; and Aortic 8 cm. The aorta and great vessels show focal atherosclerosis. At the bifurcation of the abdominal aorta there is marked sclerosis with focal calcification and ulceration. Sections through the coronary arteries reveal focal sclerosis, however, there are no areas of significant narrowing or occlusion identified.

LUNGS:

The right lung weighs 350 gm. It is composed of 2 lobes, both of which show normal crepitation. The pleura is salmon pink mottled with foci of dark grey to black. On section, the surfaces are salmon pink to red. The bronchioles contain copious quantities of green liquid, similar to that found in the stomach. There is marked congestion of the mucosa.

The left lung weighs 500 gm. The intra-lobular fissure is obliterated by dense fibrinous adhesions. The lower lobe shows marked reddish-purple discoloration and contains ballotable cystic cavity. The upper lobe shows normal crepitation. The pleura is salmon pink to red. On section, an estimated 75 per cent of the lower lobe, is replaced by an abscess cavity. The lumen contains thick, grey, mucoid liquid. The walls are covered with a thick, grey, shaggy exudate. The adjacent parenchyma is soft, necrotic and shows marked autolysis. Sections through the remaining lower lobe shows marked congestion.

Green liquid lies within the trachea and bronchi. Grossly, it resembles stomach contents.

Both pulmonary arteries are filled with laminated, twisted thrombi which totally occlude the lumens.

VASCULAR SYSTEM:

Examination of the vena cava and the iliac veins, similar clots are identified. Some protrude from the femoral vein on the right side.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable. The stomach contains moderate quantities of undigested food and bile stained liquid. The small bowel contains bile stained chyme and the large bowel contains firm brown fecal matter. The mucosa and wall are not remarkable. The appendix shows total lumenal obliteration by fibrosis.

LIVER:

The liver weighs 1450 gm. The capsule is tan, smooth and shiny. On section there is accentuation of the lobular pattern. Copious quantities of hemorrhagic liquid exude freely from the surfaces. The biliary radicles and portal vein are essentially normal.

The gall bladder contains about 100 cc. of thin green bile and one calculus of the mixed type, measuring 2 cm. in diameter.

The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 170 gm. and shows slight fatty infiltration.

GENITO-URINARY:

The right kidney weighs 150 gm. The capsule strips with difficulty, revealing a finely granular surface and an occasional inclusion cyst. The latter measures up to 5 mm. in diameter. On section the cortico-medullary line is sharp. The cortex averages 4 to 5 mm. in thickness and is tan. The medulla is purple. The calyces, pelvis and ureter are not remarkable grossly.

The left kidney weighs 140 gm and is similar to the right.

The urinary bladder contains about 200 cc. of dark straw colored fluid. The wall and mucosa are not remarkable.

The uterus and fallopian tubes are not remarkable. Multiple sections reveal a hemorrhagic or congested edometrium. The cervix is not remarkable.

The ovaries show marked bilateral senile atrophy with extensive calcification.

ADRENALS:

Normal in size, shape, color, and consistency.

THYROID:

Normal in size, shape, color, and consistency.

PITUITARY:

Not remarkable.

BONE MARROW:

The marrow of the right iliac crest, sternum, rib and vertebrae is normal. No gross abnormalities are noted in these bones.

LYMPH NODES:

Not remarkable.

SPLEEN:

The spleen weighs 150 gm. The capsule is smooth, shiny and purple. On section, there is marked autolysis. The parenchyma is pultaceous, and dark red to purple.

HEAD:

There are no abnormalities in the scalp. The calvarium is markedly thickened, measuring up to 1.5 cm. Innumerable bony masses measuring up to 5 mm. in length, project from the inner surface of the calvarium. Grossly, these resemble exostoses. The meninges are not remarkable.

The paranasal sinuses, mastoid air cells and middle ears are normal.

BRAIN:

The brain weighs 1200 gm. The hemispheres are symmetrical. The gyri and sulci are not remarkable. The arteries at the base show only slight sclerosis with no areas of significant narrowing or occulusion. Sections made 1.0 to 1.5 cm. apart reveal no gross abnormalities. The ventricles are normal in size and are symmetrical bilaterally. Sections made through the cerebellum, brain stem and medulla reveal no gross abnormalities.

MICROSCOPIC DESCRIPTION:

Heart:

Sections through the myocardium reveal perivascular and focal interstitial fibrosis. Some arteries and arterioles showing varying degrees of intimal thickening are present. In some areas, the myocardium shows moderate degeneration.

Lungs:

Sections through the abscess wall reveal far advanced degeneration and necrosis of the adjacent parenchyma with marked neutrophilic infiltration. The lumen is filled with purulent exudate and necrotic debris. Bacterial colonies are abundant. Other sections reveal extensive bronchopneumonia with congestion and intra-alveolar hemorrhage. In some areas, the interlobular septa show fibrous thickening. Some vessels showing intimal thickening are present. A few arteries are filled with laminated premortem clot. There is beginning organization of the intra-alveolar exudate in some areas.

Sections through the trachea reveals loss of epithelium with slight lymphocytic infiltration of the sub-mucosa.

Liver:

Sections reveal moderate congestion. In some areas, there is slight atrophy of the liver cord cells with widening of the sinusoids. A few lymphocytes are scattered about the periportal fibrous tissue.

Pancreas:

Sections reveal moderate fatty infiltration with replacement of parenchyma. Thick wall arteries and arterioles are present. Some show intimal hyalinization. Foci of post-mortem autolysis are present.

Kidneys:

Sections reveal slight uneven fibrous thickening of the capsule with lymphocytic infiltration. Here, the structures show atrophy. An occasional hyalinized glomerulus is present. Elsewhere, arteries show slight intimal thickening are present. An occasional artery shows significant lumenal narrowing.

Uterus:

Sections reveal thick walled arteries and arterioles. The endometrium is atrophic, however, a few glandular spaces and cysts are scattered about. There is marked congestion of the endometrium. Some arteries show medial calcification.

Thyroid:

Not remarkable, except for thickening of some arteries and arterioles.

Adrenals:

Sections reveal slight to moderate intimal thickening of the pericapsular arteries and arterioles. There is slight lymphocytic infiltration of the medulla with depletion of the cortical lipid.

Pituitary:

Not remarkable.

Spleen:

Sections reveal some depletion of the lymphoid element. There is focal congestion. The arteries and arterioles show intimal thickening and hyalinization. Neutrophils and macrophages are sprinkled about the sinusoids.

Brain:

Sections reveal slight to moderate perivascular and focal degeneration. Some arteries show slight to moderate intimal thickening. In some areas, there is slight focal demyelinization. The latter is limited to the upper spinal cord.

Calvarium:

The periosteum is absent over most of the bone. The cortex and trabeculae are not remarkable. The marrow spaces contain a small amount of cellular marrow. Many are empty or contain connective tissue.

Sternum:

The attached skeletal muscle and periosteum are essentially normal. Thick-walled vessels are moderately abundant. The cortex and trabeculae are mature and show no significant abnormalities. There is a slight preponderance of the cellular element over the fatty element. Megakaryocytes are identified. Lymphoid aggregates are also present. There is some granulocytic-series hyperplasia.

Rib:

Skeletal muscle and periosteum are not remarkable. The cortex and trabeculae are mature and show no histologic abnormalities. The marrow is similar to that previously described.

Vertebra:

The periosteum is somewhat thickened. Thick-walled vessels are moderately abundant. The cortex is thin. The trabeculae are mature. The marrow cells are similar to those previously described. The intravertebral disc shows focal calcification but is not otherwise abnormal.

CASE # 4

AGE: 61

DATE OF DEATH: 11.02 p.m. 12-9-55

DATE OF AUTOPSY: 8:30 a.m. 12-10-55

PROSECTOR: Richard A. Call, M.D.

CHIEF DIAGNOSIS:

1. Cerebral infarction, recent.
2. Bilateral bronchopneumonia, early.
3. Marked emaciation and malnutrition.
4. Epitheliosis of the esophagus, marked.
5. Fibrous adhesions of the pleura.

COMMENT:

The immediate cause of death in this case was undoubtedly due to a combination of factors. The most important being the recent infarction of the brain plus the hypostatic bronchopneumonia. The extensive malnutrition with emaciation certainly added greatly to the final demise. The cause of the cerebral infarct was probably the result of a cerebral thrombosis.

A positive diagnosis of progressive muscular dystrophy could not be made on the basis of the muscles examined histologically.

CLINICAL HISTORY:

This patient developed normally and was normal mentally until age 20 when he suffered a serious brain injury. Following this, mental development ceased and deterioration began. This individual has been hospitalized several times at the Utah State Hospital where a diagnosis of hebephrenic Schizophrenia was made.

GENERAL DESCRIPTION:

This is the body of a well developed, poorly nourished emaciated white man who appears older than the stated age. It measures 67" in length and weighs an estimated 100 pounds. The scalp is covered with short grey brown hair showing receding at the temples. The cheeks are sallow and the eye balls are sunken. An imbalming incision is present at the base of the neck on the right side. The ear canals are dry. The nasopharynx is not remarkable. The nares are normal. Both nipples are absent. Irregular smooth scars measuring 5.0 cm. in the greatest diameters replace the nipples. A 2.0 cm. well healed scar lies over the anterior superior iliac crest on the right side. The external genitalia are not remarkable. The penis is circumsized. A brown nevus lies over the pubis on the right side. The hair distribution is that of a normal adult male. There are innumerable ecchymoses over the wrists and the dorsal aspect of both hands. (needle puncture wounds) There is marked atrophy of the interosseous muscles.

PRIMARY INCISION:

The usual Y shaped incision reveals a 1.0 mm. layer of dark orange to brown atrophic fat. The muscles are pale red but are not otherwise remarkable.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. The organs lie in normal relationship. A few fibrous adhesions lie between the sigmoid and the left lateral abdominal wall.

The appendix lies retro-cecal, but is otherwise not remarkable. The liver margin extends 7.0 cm. beneath the xiphoid process and 6.0 cm. beneath the costal cartilage in the right midclavicular line. The capsule is tan to red purple and is acute. The right leaf of the diaphragm lies at the 4th intercostal space and the left leaf lies at the level of the 5th rib. There is no evidence of a hiatal hernia.

Both pleural spaces are largely obliterated due to dense fibrous adhesions. These are well organized and broken with difficulty.

The pericardial space contains a few cc. of pale straw colored fluid. No abnormalities are noted. The heart is normal in position and contour.

HEART:

The heart weighs 180 grams. Multiple sections through the myocardium reveal no gross abnormalities. The left ventricular myocardium averages 10.0 to 12.0 mm. in thickness and the right ventricular myocardium averages 3.0 mm. in thickness. The interauricular septa are intact. The auricular appendages are empty and are essentially normal. The valves are soft and pliable and the leaflets are delicate. The circumferences of the valves at the rings are as follows: Pulmonic, 5.0 cm.; Tricuspid, 8.0 cm., Mitral, 8.0 cm.; and Aortic, 6.0 cm. Multiple sections through the coronary vessels reveal slight sclerosis, however, no areas of significant narrowing are identified. The aorta shows only a light focal atherosclerosis in the abdominal portion. The great vessels are not remarkable.

LUNGS:

The right lung weighs 550 grams. Innumerable fibrous adhesions cover the visceral pleura. The surfaces are dark red to purple mottled with anthracotic pigment. In some areas the pleura is lacerated (due to difficulty in removal) On section the surfaces are dark purple. Copious quantities of hemorrhagic liquid exude freely from the parenchyma, most marked in the lower lobe. Here, thick grey mucoid liquid exudes from the surfaces and from the bronchioles. Sections through the middle and upper lobes show only slight congestion.

The left lung weighs 500 grams and is similar to the right.

The trachea, bronchi, and bronchioles are filled with a thick grey mucoid liquid. The mucosa shows marked hyperemia.

The pulmonary artery and veins show no gross abnormalities.

GASTRO-INTESTINAL:

The esophagus shows marked epitheliosis. In some areas it is uniform pearly grey.

The stomach contains about 100 cc. of bile stained liquid admixed with milk curd. The mucosal and rugal patterns are normal. There is slight focal hemorrhage of the mucosa. The small bowel contains bile stained chyme. The large bowel contains brown fecal matter. The wall and mucosa are normal.

LIVER:

The liver weighs 1200 grams. The capsule is smooth, shiny, and tan. On section the tan parenchyma bulges slightly beyond the capsule. The lobular pattern is distinct. The portal vein and biliary radicules are normal.

The gallbladder contains a few cc. of bile. The mucosa and wall are normal. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 100 gm. It is normal in shape, color, and consistency.

GENITO-URINARY:

The right kidney weighs 100 grams. The capsule strips with ease revealing a pale tan surface. On section the cortice-medullary lines are sharp. The cortex averages about 6.0 to 7.0 mm. in thickness and is tan. The medulla is purple. The calices, pelvis and ureter are normal.

The left kidney weighs 120 grams and is similar to the right.

The urinary bladder contains a few cc. of thick grey liquid. The mucosa shows marked hyperemia with focal hemorrhage.

The prostate measures 4.0 x 3.5 x 3.0 cm. Multiple sections reveal no abnormalities. The seminal vesicles contain thick tan mucoid liquid.

SPLEEN:

The spleen weighs 70 grams. The surface is tan to purple. On section the parenchyma is firm and dark red to purple mottled with pin point foci of grey.

LYMPH NODES:

Not remarkable.

BONE MARROW:

The sternal, rib and vertebral marrow is dark red and abundant. The right iliac creast marrow shows fatty replacement. The calvarium is not remarkable. Marrow is scanty.

ENDOCRINE:

The thyroid weighs about 30 grams and is normal in shape, color, and consistency. The normal colloid sheen is present. Multiple sections reveal no abnormalities.

ADRENALS:

Normal in size, shape, color and consistency.

PITUITARY:

Normal in size, shape, color and consistency.

MUSCULATURE:

All of the muscles examined are normal in color and development.

HEAD:

No abnormalities are noted in the scalp or calvarium.

The meninges and cerebro-spinal fluid are clear.

The mastoid air cells, middle ears, and ethmoid sinuses are normal. A fistulous tract extends from the sella turcica into the sphenoid sinus. This easily admits a 5.0 mm. probe. There is no drainage. The pituitary shows no gross abnormalities.

The sphenoid sinus is not otherwise remarkable.

The brain weighs 1400 grams. The hemispheres are symmetrical. The gyri and sulci are not remarkable. Frontal sections made through the cerebral hemispheres reveal no gross abnormalities, except on the right side anterior to the basal ganglia. Here, there is softening with marked congestion and innumerable petechial hemorrhages. This lesion does not involve the basal ganglia. The ventricles are not remarkable. The ventricular system is is symmetrical and not abnormal. Sections throughout the cerebellar hemispheres reveal no abnormalities.

Sections through the brain stem and cerebellum reveal no abnormalities.

MICROSCOPIC DESCRIPTION:

Heart:

Sections reveal serous atrophy of fat with focal fibrous thickening and hyalinization of the pericardium. Some of the arterioles show slight to moderate intimal thickening. There is focal perivascular fibrosis of the myocardium. Most of the myocardial fibers contain abundant quantities of brown granular pigment lying adjacent to the nuclei.

Aorta:

Sections reveal slight atherosclerosis. Lymphocytes are lightly sprinkled about some of the vasa vasorum. These vessels within the media show minimal changes.

Lungs:

Sections reveal edema, focal intra-alveolar hemorrhage and early bronchopneumonia. Other sections reveal slight emphysema. An occasional alveolus contains hyalinized fibrous plug. Many bronchioles contain neutrophilic exudate and show desquamation of the epithelium. Others show lymphocytic and neutrophilic infiltration throughout the wall. There is slight to moderate anthracosis. The arteries and arterioles are not unusual.

Liver:

Sections reveal slight chronic passive congestion. An occasional lymphocyte and neutrophil are found within the sinusoids.

Pancreas:

Not remarkable except for atrophy of fat.

Esophagus:

Sections reveal uneven hyperplasia of the straitified squamous epithelium. The basment membrane is intact. The subepithelial tissues reveal slight lymphocytic infiltration. There is no evidence of malignant change. Sections through the muscularis show considerable degeneration. In some areas the muscle fibers show distinct vacuolization with almost total destruction. Elsewhere, intact fibers are identified. In some areas the cross striations are totally destroyed. Some of the fibers appear hypertrophied.

Muscles:

Sections through the pectoral musculature reveal similar but less marked changes. There is no evidence of vacuolization of muscle fibers in these sections. There are, however, an increased number of nuclei in the sarcolemma.

Kidneys:

Sections reveal atrophy of the peri-pelvic fat. An occasional glomerulus shows fibrosis and hyalinization. An occasional artery shows slight to moderate intimal thickening.

Prostate:

Sections reveal innumerable corpora amylacia lying within the prostatic glands. There is moderate to marked focal periglandular lymphocytic infiltration. In the areas of most marked inflammation, there is some distortion of the glandular epithelium. However, there is no evidence of malignant change.

Thyroid:

Sections reveal small and moderate sized follicles. The latter are well filled with colloid. Many of the small follicles are empty. No other abnormalities are noted. There is no evidence of nodularity.

Adrenals:

Not remarkable.

Pituitary:

Not remarkable.

Spleen:

Sections reveal accentuation of the fibrous capsule and trabeculae. There is depletion of the white and red pulp with accentuation of the sinusoidal endothelium. In some areas it appears hyperplastic. The arteries and arterioles show moderate to marked intimal thickening and hyalinization.

Brain:

Some sections reveal extensive congestion with marked perivascular hemorrhage. Most every vessel in this section shows identical ring hemorrhages. Here, there is beginning rarifaction or degeneration of the parenchyma. This is most marked in the perivascular areas. Some of the vessels contain fibrin thrombi. Other sections show similar but less marked changes. In still other areas there is perivascular lymphocytic and macrophagic infiltration. Many of these macrophages contain brown granular pigment. The arteries and arteriolesare not remarkable.

Calvarium:

The periosteum is not present. The cortex and trabeculae are not remarkable. They are mature and well organized. The marrow spaces contain loose connective tissue. Marrow cells are scanty.

Sternum:

The periosteum is not remarkable. The cortex is thin. The trabeculae are narrow and delicate. The marrow shows a preponderance of fat. The marrow cells are not remarkable. Megakaryocytes are identified.

Rib:

The periosteum and attached skeletal muscle are essentially normal. The cortex is not remarkable. The trabeculae are delecate and are well-formed and mature. The marrow is similar to that previously described.

Vertebra:

The periosteum is not remarkable. The cortex is thin in some areas. The trabeculae are delecate. Both are well organized and mature. The marrow is similar to that previously described, however, megakaryocytes are abundant.

Iliac Crest:

The periosteum and attached skeletal muscle are not remarkable. The cortex and trabeculae are well-formed and mature. There is some autolysis of the marrow. Fat predominates.

CASE NO. 5

AUTOPSY NO: US-42

AGE: 85

DATE OF DEATH: January 26, 1956

DATE OF AUTOPSY: 3:00 p.m., January 26, 1956

PROSECTOR: Richard A. Call, M. D.

CHIEF DIAGNOSIS:

1. Acute bronchopneumonia, right lower lobe.
2. Chronic pyelonephritis, right, with renal lithiasis, marked.
3. Hydro-ureter, right.
4. Adenocarcinoma of the prostate gland.
5. Generalized arterio-and arteriolosclerosis.
6. Nodular hyperplasia of the prostate, marked.
7. Nodular thyroid.
8. Hemangiomas of the liver.
9. Focal fibrous thickening of the splenic capsule.

COMMENT:

The immediate cause of death in this case was undoubtedly due to the acute fulminating bronchopneumonia of the right lower lobe. Copious quantities of purulent exudate partially obstructed the bronchi and bronchioles. The right kidney was probably non-functional and of some terminal importance.

The adenocarcinoma of the prostate is of interest only and played little, if any, part in the final demise.

The marked sclerosis of the cerebral vessels may have accounted for the bizarre mental behavior. This corroborates the clinical impression of a chronic brain syndrome, due to arterio and arteriolosclerosis.

The hemangiomas of the liver were of interest, but of no terminal importance.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished man, who appears younger than the stated age. It measures 69" in length and weighs an estimated 175 lbs. The scalp is bald over the dome, but is elsewhere covered with thin, grey hair. The ear canals are dry. The pupils are round and equal. The irides are blue. There is an excoriation measuring 2.0 x 0.3 cm. over the lateral aspect of the right eye brow. There is moderate edentia partialis with dental caries of the remaining teeth. The nasopharynx is not remarkable. A hard tumor mass, measuring 3.0 x 2.0 x 0.5 cm. lies in the left anterior chest wall (lipoma). The hair distribution is that of a normal adult male. The external genitalia are essentially normal. A few bruises are scattered about the left knee.

PRIMARY INCISION:

The usual Y shaped incision is made, revealing a 2 cm. layer of yellow lobulated fat. The musculature is dark red, well developed and moist.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. There is moderate gaseous distention of the transverse and decending colon. The organs lie in normal relationship. The right leaf of the diaphragm lies at the level of the 5th rib and the left leaf lies at the level of the 5th intercostal space. The liver does not extend beneath the costal margin.

The pleural spaces contain no excess of free fluid. No adhesions are present.

The pericardial space contains a few cc. of straw colored fluid. The pericardium is essentially normal. The heart is normal in position and contour.

HEART:

The heart weighs 370 grams. Sections through the myocardium reveal no abnormalities. The left ventricular myocardium averages 2.0 cm. in thickness and the right ventricular myocardium averages 0.4 cm. in thickness. The chambers are of normal size. The auricular appendages are empty and are essentially normal. The interventricular and interauricular septa are intact. The valves are grossly normal. The circumferences at the rings are as follows: Pulmonic 6.5 cm.; Tricuspid 12.0 cm.; Mitral 10.0 cm.; Aortic 7.0 cm. The coronary arteries are patent but show marked atherosclerosis. Significant areas of narrowing are abundant in the proximal 3.0 cm.

The aorta shows marked sclerosis, becoming more severe as it is descended. Foci of calcification and ulcertation are present. The great vessels show similar changes.

LUNGS:

The right lung weighs 600 gm. The pleura is salmon pink to red, mottled with anthracotic pigment. The lower lobe shows decreased crepitus. The bronchi and bronchioles contain thick, grey, purulent liquid, The sectional surfaces are salmon pink to red. The upper and middle lobes are not remarkable. Copious quantities of purulent liquid exude freely from the parenchyma of the lower lobe.

The trachea and bronchi contain purulent liquid. The mucosa shows marked hyperemia.

The left lung weighs 430 gm. The pleura is salmon pink mottled with anthracotic pigment. Crepitus is normal throughout all lobes. On section, the surfaces are salmon pink to red. Areas of consolidation are not identified within the left lung.

LIVER:

The liver weighs 1080 gm. The surface is smooth, shiny and tan. The margins are acute. Two hemangiomas lie in the dome of the right lobe. The larger measures 3.0 x 3.0 x 2.5 cm. Elsewhere, the parenchyma is tan. The lobular pattern is easily visible. Copious quantities of hemorrhagic liquid exudes freely from the surfaces. The biliary radicles and portal vein are not remarkable.

The gall bladder contains a few cc. of thick bile. The common and cystic ducts are patent.

PANCREAS:

Normal in size, shape, color and consistency.

GASTRO-INTESTINAL TRACT.

The esophagus is not remarkable. The stomach contains a small quantity of undigested food and mucus. The small bowel contains bile stained chyme, the large bowel contains copious quantities of soft brown fecal matter.

GENITO-URINARY:

The right kidney weighs 30 gm. It measures in its greatest dimension 5.0 x 3.5 x 1.5 cm. The capsule strips with extreme difficulty, lacerating the cortex and revealing a pitted tan surface. On section, the calyces and pelvis are markedly distended by "stag horn" calculi. The cortex measures less than 5.0 mm. in thickness and is tan. The peri-pelvic fat is increased in amount. There is a marked hydro ureter on the right side. The obstruction lies at the uretero-vesicle junction.

The left kidney weighs 210 gm. The capsule strips with ease revealing a smooth, shiny, tan surface, bearing a solitary inclusion cyst, measuring 3.0 cm. in diameter. The lumen contains uriniferous liquid. The cortico-medullary line is sharp. The cortex is tan and measures 9.0 mm. in thickness. The medulla is purple. The peripelvic fat is normal in amount. The calyces, pelvis and ureter are normal.

The urinary bladder contains a few cc. of urine.

PROSTATE:

The prostate measures 6 x 5 x 4 cm. On section, innumerable grey to yellow nodules project above the surrounding tissue. The seminal vesicles are filled with dark tan mucoid liquid.

SPLEEN:

The spleen weighs 100 gm. There are innumerable pearly grey shiny fibrous plaques covering the surface. These measure up to 1 cm. in diameter and up to 7 mm. in thickness. On section, the parenchyma is firm and dark red to purple. The Malpighian corpuscles are not easily visible grossly.

ADRENALS:

Not remarkable.

THYROID:

Not remarkable, except for a solitary nodule, measuring 1 cm. in diameter. It lies in the right upper pole, and is tan to red and is well circumscribed. The normal colloid sheen is absent. Elsewhere, the parenchyma is tan and shows a normal colloid sheen.

LYMPH NODES:

Not remarkable. Samples are taken from the sternum, rib, vertebrae, and ilium.

HEAD:

No abnormalities are noted in the scalp or calvarium. The meninges and cerebro-spinal fluid are not remarkable.

The paranasal sinuses, mastoid air cells, and middle ears are normal.

The pituitary is not remarkable.

BRAIN:

The brain weighs 1190 gm. The cerebral hemispheres are symmetrical. There is focal fibrous thickening of the pia arachnoid, most marked over the parietal area. The cortex is not remarkable, except over the frontal portion of the temporal lobes, where there is yellowish, brown discoloration without atrophy. The arteries at the base of the brain show marked sclerosis with significant lumenal narrowing. The basolar artery is distended and measures up to 7.0 mm. in diameter. There is extensive calcification throughout. There are no areas of total occlusion or rupture identified. Multiple sections made from 1.0 to 1.5 cm. apart through the cerebral hemispheres, brain stem and cerebellum reveal innumerable thick wall vessels; otherwise, no abnormalities are noted.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal intimal thickening of some arteries and arterioles. There is slight perivascular fibrosis and some fatty infiltration. In some areas, there is increased cellularity with interstitial edema. Here, the fibers appear atrophied. Sections through the coronary arteries reveal marked sclerosis with focal calcification and significant lumenal narrowing.

Aorta:

Sections reveal moderate atherosclerosis.

Lungs:

Sections reveal extensive bronchopneumonia. Other sections show congestion, intra-alveolar hemorrhage, and emphysema.

Liver:

Sections reveal chronic-passive congestion. The periportal fibrous tissue shows slight lymphocytic infiltration. Sections reveal a hemangioma lying just subjacent to Glisson's capsule. Some arterioles show intimal thickening.

Kidneys:

Sections through the left kidney show moderate to marked intimal thickening of the arteries and some arterioles. Some tubules contain hyaline-like casts. Some glomeruli show thickening of the capillaries.

Sections through the right kidney reveal far advanced pyelonephritis. In some areas, the tubules are distended and filled with an eosinophilic colloid-like substance. Lymphocytes are moderately sprinkled about. There is interstitial fibrosis with atrophy of the adjacent structures. The cortex and medulla are greatly thinned. There is marked thickening of arteries and arterioles, some showing almost total lumenal obliteration. There is marked lymphocytic and plasma cell infiltration of the pelvic fibro-fatty tissue.

Prostate:

Sections reveal nodular hyperplasia and adenocarcinoma.

Spleen:

Sections reveal moderate to marked congestion. Some arteries and arterioles show intimal thickening. There is marked fibrous thickening with hyalinization, focal, of the capsule.

Thyroid:

Sections reveal a nodular thyroid. Some arteries show marked intimal thickening with lumenal narrowing.

Brain:

Sections reveal congestion. Some arteries and arterioles show intimal thickening with lumenal narrowing.

Calvarium:

Sections reveal histologically normal cancellous bone with a thin periosteum. The marrow spaces contain fat, and some are partially obliterated by fibrous tissue. Some vessels showing intimal thickening are identified.

Sternum:

The skeletal muscle and periosteum are intact and show no histologic abnormalities. The cortex is thin and the trabeculae are delicate. The marrow shows a slight preponderance of fat tissue. The cellular marrow shows granular cell hyperplasia.

Vertebra:

The periosteum is intact. The cortex is thin and the trabeculae are delicate. No histologic abnormalities are noted. The cellular marrow is preponderant. The granular cells show distinct hyperplasia.

Rib:

The periosteum and attached skeletal muscle are not remarkable. The periosteum is somewhat hypercellular. The superficial cortex shows uneven decalcification. There is a suggestion of a mosiac pattern of the cortex. The trabeculae are delicate. The granular cells are hyperplastic.

CASE NO. 6

A-228-56

AGE: 60

DATE OF DEATH: February 27, 1956

DATE OF AUTOPSY: February 27, 1956

PROSECTOR: Roscoe M. Nelson, M. D.

PATHOLOGIST: Richard A. Call, M. D.

CHIEF DIAGNOSIS:

1. Myocardial infarction, old and recent.
2. Extensive arterio- and arteriolosclerosis, generalized.
3. Bronchopneumonia, right, with abscess formation.
4. Pulmonary infarcts, right.
5. Chronic passive congestion of the liver,
6. Ascites, 500 cc.
7. Hydrothorax, 50 cc., right; 250 cc., left.
8. Adenoma of the kidney, solitary.
9. Fatty infiltration of the pancreas.

COMMENT:

The immediate cause of death was due to the myocardial infarction. The infarction involved the anterior apical portion of the right and left ventricles. The extensive sclerosis of the anterior descending branch of the left coronary was of great significance.

The ascites, hydrothorax and chronic passive congestion of the liver were probably due to long standing heart failure.

The extensive bronchopneumonia of the right lung with abscess formation added greatly to the final demise. Distinct, but small, hemorrhagic pulmonary infarcts were present. They undoubtedly arose in the left ventricle.

The adenoma of the kidney is of great interest but of no terminal importance. This lesion, in many respects, resembles a clear cell carcinoma of the kidney. In some areas, the cells appear rather anaplastic and lose their glandular pattern. However, the capsule is dense and is intact. The cells within the connective tissue capsule may indicate an early malignancy.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished 60 year old white man who appears at least five years younger than the stated age. It measures 173 cm. in length and weighs an estimated 175 pounds. The scalp is covered with iron grey hair showing receding at the temples. Embalming precludes examination of the eyes and nasopharynx. The ear canals are dry. The nares are not remarkable. There is normal distribution of hair over the body and extremities. A well healed scar measuring 18.0 x 6.0 cm. lies over the lateral aspect of the lower right leg. Pitting edema is absent. The external genitalia are not remarkable.

PRIMARY INCISION:

The usual Y shaped incision reveals a 2.0 to 3.0 cm. layer of yellow fat. The musculature is well developed, dark red and moist.

SEROUS CAVITIES:

The right pleural space contains about 250 cc. of clear serous fluid. Innumerable dense fibrous adhesions are present over the lower portion of the right lower lobes. About 50 cc. of clear fluid lies in the right pleural space. The pericardial space contains a few cc. of clear straw colored fluid. The heart is enlarged to the left. The periocardium is densely adherent to the heart over the anterior apex. This involves both right and left ventricles. The pericardium remains attached to the heart and is stripped with difficulty. Here, the pericardium is roughened.

The peritoneal space contains about 500 cc. of yellow straw-colored fluid. The organs lie in normal relationship. The liver capsule is tan and distinctly "nutmeg" in appearance. The edge is rounded and extends 7.0 cm. below the left costal margin. The right margin of the liver lies at the costal margin. The right leaf of the diaphragm lies at the level of the 7th rib and the left leaf lies at the level of the 6th rib.

HEART:

The heart weighs 610 grams. The pericardium is fatty. On section the left ventricular myocardium measures up to 17.0 cm. in thickness and the right ventricular myocardium averages 3.0 mm. in thickness. An extensive area of softening and necrosis lies over the anterior aspect of the apex. It is grey to white mottled with red. It involves the entire thickness of the myocardium in this area. There is slight calcification of the valve leaflets with slight thickening of the chordae tendinae of the tricuspid valve only. The circumferences of the valves at the rings are as follows: pulmonic, 9.2 cm., tricuspid, 11.8 cm., mitral, 10.5 cm., and aortic, 8.2 cm. The intraventricular and interauricular septa are intact. Sections through the coronary arteries reveal marked sclerosis with almost total obliteration of the lumen. This is most marked in the left coronary artery including the anterior descending branch. The right coronary artery contains a free clot within the lumen. There is marked atherosclerosis of the aorta becoming most marked as it is descended. At the bifurcation of the iliac arteries there is marked atherosclerosis with significant narrowing of the lumen.

LUNGS:

The right lung weighs 760 grams and shows innumerable foci of depression and dark purplish discoloration (atelectasis). Two abscesses measuring up to 2.0 cm. in diameter lie in the lower lobe. These contain thick green foul pus. (Cultures reveal pseudomonas). Areas of consolidation are scattered about the right lower lobe on section. The bronchial tree is free of secretions and aspirations. The pleura is dark red to purple mottled with anthracosis. The arteries and arterioles are not remarkable.

The left lung weighs 570 grams. The pleura is smooth, shiny, and dark red mottled with anthracotic pigment. On section the surfaces are pale to dark red. The parenchyma appears grossly normal. The bronchi and bronchioles are not remarkable.

CASE NO. 6

LIVER:

The liver weighs 1920 grams. The edges are rounded and the surface shows distinct nutmeg change. On section there is marked accentuation of the lobular pattern. There is no increase in fibrosis. The biliary radicles and portal vein are patent.

The gall bladder contains a small quantity of green bile. The wall and mucosa are normal. The common and cystic ducts are patent.

The pancreas weighs 150 grams and is not remarkable.

THYROID:

The thyroid weighs 24 grams. A parathyroid gland measuring 4.0 mm. in diameter is identified in the left lower lobe. The thyroid is not nodular.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable.

The stomach contains 50 to 100 cc. of hemorrhagic mucoid liquid. The rugal pattern is not remarkable. Polyps and ulcers are absent. The duodenum appears normal. The small bowel appears normal throughout. The large bowel is normal.

GENITO-URINARY TRACT:

The right kidney weighs 300 grams. The capsule strips without difficulty revealing a finely granular surface. An occasional inclusion cyst measures up to 2.0 cm. in diameter. On section the cortico-medullary line is sharp. The cortex averages 6.0 mm. and is tan. The medulla is purple. The calyces, pelvis and ureter are not remarkable.

The left kidney weighs 250 grams and is similar to the right.

ADRENALS:

Not remarkable.

PROSTATE:

The prostate measures 6.0 x 4.5 x 2.5 cm. The surfaces are grey. No nodules are identified. The seminal vesicles are not remarkable.

SPLEEN:

The spleen weighs 210 grams. The capsule is intact without adhesions. On section the surfaces are dark red to purple and firm. The Malpighian corpuscles are not grossly visible.

LYMPH NODES:

Except for anthracotic hilar lymph nodes there are no abnormalities noted.

BONE MARROW:

Not remarkable.

MICROSCOPIC DESCRIPTION

Heart:

Sections through the myocardium reveal extensive coagulative necrosis extending from endocardium to epicardium. There is beginning lymphocytic and neutrophilic infiltration subjacent to the epicardium and endocardium. In other areas there is extensive fibrous replacement of myocardium with increased vascularity and moderate lymphocytic infiltration. Here, the remaining myocardial fibers show extensive atrophy. Arteries and arterioles show slight to marked intimal thickening. Some arteries contain fibrinocellular clot. These, however, do not represent the primary coronary arteries. In some areas, organizing blood clot lies attached to the endocardium. Sections through the aorta show extensive atherosclerosis with distortion of the histologic pattern. Some of the vasa vasorum within the adventitia show perivascular lymphocytic infiltration. A few lymphocytes are scattered about the vasa vasorum lying within the musculasis. Ulceration and foci of calcification are prominent.

The pericardial fat shows focal lymphocytic infiltration and perivascular lymphocytic infiltration. In some areas the pericardium shows uneven fibrous thickening.

Lungs:

Sections reveal extensive bronchopneumonia with focal emphysema and stelectasis. Portions of an abscess are identified. Here, the tissue shows advanced degeneration and necrosis. A distinct pyogenic membrane has not developed. The lumen is filled with necrotic neutrophils and debris. Lying within the abscess cavity are colonies of bacteria. Elsewhere, there is slight infiltration of the alveoli by macrophages. In some areas the pleura shows uneven fibrous thickening. Fibrinous adhesions partially cover the pleura in some sections. Other sections show extensive interstitial hemorrhage with degeneration, necrosis and beginning neutrophilic infiltration (infarct).

Liver:

Sections reveal extensive chronic passive congestion. The cord cells in the central zones in some areas show extensive degeneration and necrosis. Here, intact red cells are abundant. The peri-portal fibrous tissue shows slight lymphocytic infiltration.

Pancreas:

Sections reveal extensive fatty infiltration with replacement of parenchyma. Thick walled arteries and arterioles are abundant. Some show thrombosis with beginning recanalization.

Bowel:

Not remarkable.

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Kidneys:

Lying subjacent to the capsule are irregular foci of atrophy of structures with interstitial fibrosis. Here, the glomerulae show fibrosis and hyalinization. There is moderate to marked lymphocytic infiltration. These foci are most abundant in the cortex, however, some extend into the medulla. Arteries and arterioles showing varying stages of intimal thickening and hyalinization are abundant. Lying subjacent to the capsule, in one section, is a nodular well circumscribed and encapsulated mass. It is composed of tubule-like structures lined by plump cells. There is focal degeneration, necrosis, and beginning fibrous replacement. In some areas nests of clear cells are identified. Here, they appear in masses and are not glandular. Nests of these cells lie within the fibrous tissue of the capsule. The cells are round and contain abundant clear vesiculated cytoplasm. The nuclei are round or oval. Nucleoli are not prominent. Mitotic figures are scanty. Other sections show innumerable vascular spaces filled with red cells. Brown granular pigmented macrophages are moderately abundant. None of the tumor cells lies outside the dense fibrous capsule.

Thyroid:

Not remarkable.

Parathyroid:

Not remarkable.

Lymph nodes:

Sections reveal moderate anthracosis. Some arteries and arterioles show intimal thickening.

Bone Marrow:

Not remarkable.

Sternum:

The periosteum is intact. The cortex is not remarkable. The trabeculae are delicate. The marrow shows granular cell hyperplasia.

Rib:

The periosteum is intact. The cortex is not remarkable. The trabeculae are delicate and show incomplete decalcification. There is a distinct preponderance of the cellular marrow with a moderate to marked granular cell hyperplasia. The attached skeletal muscle is not remarkable.

CASE NO. 7

US-45

AGE: 53

SEX: Male

DATE OF DEATH: 3-15-56

DATE OF AUTOPSY: 3-16-56

PROSECTOR: Richard A. Call, M.D.

ASSISTANT: John Koense

CHIEF DIAGNOSIS:

1. Bronchopneumonia, early.
2. Myocardial degeneration and necrosis, moderate, focal.
3. Right ventricular hypertrophy.
4. Emphysema, moderate to marked.

COMMENT:

The immediate cause of death in this case was due to a combination of factors. The most important was bronchopneumonia and myocardial degeneration and necrosis.

The extensive emphysema and focal pulmonary fibrosis resulted in the right ventricular hypertrophy, which probably resulted in terminal heart failure.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished man who appears older than the stated age. It measures 67" in length and weighs an estimated 175 lbs. The scalp is covered with brown hair admixed with grey. The pupils are round and equal. The naso-pharynx is not remarkable. There is edentia totalis. A blue tatoo measuring 5 x 3 cm. lies in the right forearm. The object is unidentified. A red-blue tatoo of a pirate measuring 16 x 5 cm. lies on the left forearm. Several words and initials which cannot be identified lie just beneath the pirate. The distal three phalanges of the third, fourth, and fifth digits of the left hand are absent. A well-healed scar is present over the stumps of these digits. A scar measuring 2.5 x 1 cm. lies just above the right knee. A 4 cm. scar lies on the right buttock. Surrounding this scar are three crusted lesions measuring about 1 cm. in diameter. Needle puncture wounds are present in the mid-line of the lumbar spine, (spinal puncture). Bony abnormalities and exostosis are not identified.

PRIMARY INCISION:

The usual Y shaped incision reveals a 3 cm. layer of lobulated fat. The musculature is well-developed, dark red and moist.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. The organs lie in normal relationship. The appendix is not remarkable. The liver lies at the

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PRIMARY INCISION:

The usual Y shaped incision reveals a 3 cm. layer of lobulated fat. The musculature is well-developed, dark red and moist.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. The organs lie in normal relationship. The appendix is not remarkable. The liver lies at the costal margin. The right leaf of the diaphragm lies at the level of the fifth intercostal space and the left leaf lies at the same level.

The pleural spaces contain no excess of free fluid. Dense fibrous adhesions partially obliterate the right pleural space. The left space is not remarkable.

The pericardial space contains no excess of free fluid. The heart lies in normal position and is normal in contour.

HEART:

The heart weighs 420 grams. Multiple sections throughout the myocardium reveal congestion. The left ventricle averages 15 mm. in thickness and the right ventricle averages 5 to 7 mm. The interventricular and interauricular septa are intact. The auricular appendages are empty and are not remarkable. The valves are grossly normal. The circumferences of the valves at the ring are as follows: Pulmonic 7.5 cm; tricuspid, 12 cm.; mitral, 9 cm.; aortic, 6 cm. Sections through the coronary arteries reveal slight sclerosis. No areas of significant narrowing or occulsion are identified. The aorta shows moderate sclerosis becoming more marked as it is descended. Foci of ulceration are identified grossly.

LUNGS:

The right lung weighs 720 gm. The parenchyma is tougher than normal. The pleura is badly lacerated in removal. Innumerable fibrous tags are scattered about. On section the surfaces are dark red to purple. Hemorrhagic liquid exudes freely from the parenchyma. Emphysematous blebs measuring up to 3 cm. in diameter are present. Small soft grey nodules are scattered about. The bronchi and bronchioles are not remarkable. The pulmonary artery is normal.

The left lung weighs 600 gm. and is similar to the right, however, fibrous adhesions are not present. The pleura is red to dark red, mottled with abundant anthracotic pigment.

LIVER:

The liver weighs 1800 gm. The capsule is smooth, shiny, and tan. On section, the parenchyma bulges beyond the capsule. The parenchyma is more friable than normal. The lobular pattern is not remarkable. The biliary radicles and portal vein are patent.

The gall bladder contains a few cc. of bile. The mucosa and wall are normal. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 180 gm. On section no abnormalities are noted.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable.

The stomach contains undigested food and mucus. The mucosa and wall are normal. The small bowel contains bile stained chyme. The large bowel contains a small quantity of firm brown fecal matter.

GENITO-URINARY TRACT:

The right kidney weighs 180 gm. The capsule strips with slight difficulty revealing an occasional depressed scar. On section the cortico-medullary line is sharp. The cortex averages 9 to 10 mm. in thickness and is tan. The medulla is purple. The calices, pelvis, and ureter are not remarkable.

The left kidney weighs 170 gm. and is similar to the right.

PROSTATE:

The prostate measures 4 x 4 x 3.5 cm. Multiple sections reveal no abnormalities. The seminal vesicles are not remarkable.

SPLEEN:

The spleen weighs 100 gm. and is purple. A section of the parenchyma is moderately firm. The Malpighian corpuscles are easily identified.

LYMPH:

Not remarkable.

BONE MARROW:

The rib, sternum, sternal, and vertebral marrow are not remarkable.

THYROID:

Normal in size, shape, and consistency.

ADRENALS:

Not remarkable.

PITUITARY:

Not remarkable.

BRAIN:

The brain weighs 1300 grams. The cerebral hemispheres are symmetrical and show focal atrophy. Foci of atrophy are identified. The pia arachnoid is not remarkable. On section there is hemorrhage into the lateral ventricles. The scurce of hemorrhage is not identified. Granulation is not present. There is slight congestion, otherwise, no other abnormalities are noted in the cerebral hemispheres. The medulla, upper cord, and cerebellum are not remarkable.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal focal degeneration of the myocardium with loss of the cross striations and beginning neutrophilic infiltration. These foci are small but are scattered about most of the sections examined. There is perivascular lymphocytic and neutrophilic infiltration. One section in particular shows moderate to marked neutrophilic infiltration. Here, there is fatty infiltration with significant degeneration and necrosis of myocardial fiber. Brown granular pigment lies within the cytoplasma of most fibers.

Aorta:

Sections reveal slight atherosclerosis.

Lungs:

Sections reveal congestion, slight edema and in some areas marked early bronchopneumonia. Other sections show extensive fibrous thickening of the interlobular septa, with marked emphysema. In these areas, there is almost total destruction of the normal histologic architecture. There is fibrosis of the perivascular parenchyma. Thick walled vessels are abundant. Some show almost total lumenal obliteration. The pleura shows fibrous thickening and of anthracotic pigmentation. Most of the alveoli contain abundant brown pigmented macrophages.

Liver:

Sections reveal moderate congestion. There is (1+) fatty metamorphosis. The peri-portal fibrous tissue shows slight lymphocytic infiltration.

Pancreas:

Not remarkable.

Kidneys:

Sections reveal slight lymphocytic infiltration into foci of atrophy lying subjacent to the capsule. There is diffuse congestion. The arteries and arterioles show slight to moderate intimal thickening.

Prostate:

Not remarkable.

Thyroid:

Not remarkable.

Adrenals:

Not remarkable.

Pituitary:

Not remarkable.

Brain:

Sections reveal marked congestion with slight perivascular hemorrhage. Sections through the cortex reveal a slight accumulation of neutrophils and lymphocites lying subjacent to the pia arachnoid. Sections through the cerebellum reveal some degeneration.

Calvarium:

The periosteum is absent. The cortex is unusually thick. There is a faint suggestion of a mosaic pattern. The marrow spaces are small. The trabeculae are broad. The marrow is predominantly fatty.

Sternum:

The periosteum is intact. A small amount of skeletal muscle is also present. The cortex is not remarkable. The trabeculae are delicate and show uneven decalcification. The marrow is predominantly fatty.

Vertebra:

Sections reveal intact cartilagenous disc and periosteum. The trabeculae are delicate, and show uneven decalcification. The marrow is not remarkable.

Rib:

The skeletal muscle and periosteum are not remarkable. The cortex is composed of mature bone and the trabeculae are delicate. The marrow is similar to that previously described.

CASE NO. 8

A-231-56

AGE: 73

DATE OF DEATH: 3-20-56

DATE OF AUTOPSY: (9:00 am) 3-20-56

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Robert V. Davis

CHIEF DIAGNOSIS:

1. Myocardial infarction, recent, extensive.
2. Coronary thrombosis, left.
3. Arterio-and arteriolosclerosis, slight to marked.
4. Diverticulosis coli, marked.
5. Chronic passive congestion of the liver, moderate.
6. Accessory spleen.
7. Hydrothorax, bilateral, right 400 cc.; left, 400 cc.

COMMENT:

The immediate cause of death in this case was the direct result of an extensive myocardial infarction involving the postero-lateral aspect of the left ventricular myocardium, extending from the apex to the base. It involves all three layers of the wall. The infarction was the result of an occlusion of the circumflex branch of the left coronary artery.

The other findings were of interest but played no important part in the final demise.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished elderly white female who appears the stated age. It measures 62 inches in length and weighs an estimated 115 pounds. The scalp is covered with long grey hair. No abnormalities are noted in the scalp. Embalming precludes examination of the eyes and nasopharynx. The nares are not remarkable. The ear canals are dry. Ecchymoses and needle puncture wounds are present about the antecubital fossa and wrists. Petechial hemorrhages are scattered about the inner aspect of each knee and over the ankles. The external genitalia are essentially normal. The hair distribution is that of a normal adult female. The breasts show moderate atrophy.

PRIMARY INCISION:

The usual Y shaped incision is made revealing a 2.0 to 3.0 cm. layer of fat over the anterior abdominal wall. The musculature is dark red, well developed, and moist.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. The omentum covers the lower abdominal organs. The organs lie in normal relationship.

The appendix is present and not remarkable. The most significant finding in the abdominal space is the presence of innumerable diverticula extending from the cecum to the rectum. These measure up to 1.5 cm. in diameter. Foci of inflammation are absent. The liver shows accentuation of the lobular pattern. The margin extends 5.0 cm. beneath the xiphoid process in the midline. The capsule is smooth and is tan. The margins are moderately rounded. The right leaf of the diaphragm lies at the level of the 5th rib and the left leaf lies at the level of the 6th rib.

Each pleural space contains about 400 cc. of clear dark straw-colored fluid Adhesions are not present. The lungs are well expanded.

The pericardial space contains a few cc. of straw colored fluid. The heart is slightly enlarged to the left. The heart lies in normal position.

HEART:

The heart weighs 410 grams. A thick layer of fat covers the epicardium. At the base it measures 1.0 cm. in thickness, thus hiding the coronary arteries. Multiple sections throughout the myocardium reveal extensive degeneration, necrosis, and interstitial hemorrhage of the postero-lateral aspect of the left ventricular myocardium. This extends from within 1.0 cm. of the base to the apex and involves the tip of the interventricular septum. The apical portion of the right ventricle is spared. The involved myocardium is distinctly differentiated from the normal myocardium. Foci of grey measuring up to 1.0 cm. in diameter are scattered about. Lying within the apical portion of the left ventricle is an adherent mural thrombus. Elsewhere, the myocardium is not remarkable. The left ventricle averages 10.0 to 12.0 mm. in thickness and the right ventricular myocardium averages 2.0 to 3.0 mm in thickness. The intraventricular and interauricular septa are intact. The right ventricle is distended two times normal size. The other chambers are of normal size. The auricular appendages contain post-mortem blot, otherwise, no abnormalities are noted. The valves are grossly normal. The circumferences of the valves at the rings are as follows: pulmonic, 7.0 cm., tricuspid, 11.0 cm., mitral, 10.0 cm., and aortic, 6.0 cm. Sections through the coronary arteries reveal marked sclerosis of the left coronary. The proximal 7.0 to 8.0 cm. shows the lumen to be less than a mm. in diameter. Approximately 4.0 cm. distal to the ostia in the circumflex branch lies a thrombus totally occluding the lumen. This artery shows marked calcification. The branching vessels are smaller than normal. Sections through the right coronary artery show foci of sclerosis, however, no areas of significant narrowing are noted. The aorta shows atherosclerosis becoming more marked as it is descended. Ulceration and calcification is marked in the abdominal portion.

LUNGS:

The right lung weighs 330 grams. The pleura is salmon pink mottled with anthracotic pigment. Crepitus is normal throughout. On section the parenchyma is salmon pink to red. The bronchioles contain a small amount of tenacious mucoid liquid. The arteries and arterioles are normal.

The left lung weighs 340 grams and is similar to the right.

The trachea and bronchi contain a small quantity of mucoid liquid.

LIVER:

The liver weighs 1200 grams. The capsule is tan and the lobular pattern appears accentuated. On section the parenchyma shows marked accentuation of the lobular pattern and is nutmeg in appearance in some areas. The parenchyma is slightly softer than normal. Copious quantities of hemorrhagic liquid exude freely from the surfaces. The bilary radicles and portal vein are patent.

The gall bladder contains a few cc. of bile. The mucosa and wall are normal. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 150 grams. It is normal in shape, color, and consistency. Lying at the tail of the pancreas is a 2.0 cm. sized accessory spleen showing no gross abnormalities.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable.

The stomach shows marked congestion and focal petechial hemorrhages, most marked in the fundus. A small quantity of mucus lies within the lumen. The duodenum and small bowel contains a small quantity of bile stained chyme. The large bowel contains small fragments of brown fecal matter. Innumerable diverticula are scattered about the large bowel extending from the cecum to the rectum. These measure up to 1.5 cm. in diameter. Many are empty; others contain masses of fecal matter. Foci of inflammation are not identified. No other abnormalities are noted.

GENITO-URINARY:

The right kidney weighs 130 grams. The capsule strips with ease revealing a smooth, shiny surface showing an occasional mm. sized pit. On section the cortico-medullary line is sharp. The cortex averages 7.0 cm. in thickness and is tan. The medulla is purple. The calices, pelvis, and ureter are normal.

The left kidney weighs 130 grams and is similar to the right with the exception of a honey-combed cystic space measuring 1.0 cm. in diameter. This lesion is limited to the cortex and contains thin cloudy pale brown liquid.

The urinary bladder is not remarkable.

The ovaries, fallopian tubes, and uterus are not remarkable. Sections through the uterus show no abnormalities except for thick walled vessels in the myometrium. The endometriium is atrophic and pale red to tan.

Varicose veins are scattered about the broad ligament most marked near the attachment of the ovarian ligament.

THYROID:

Normal in size, shape, color and consistency.

ADRENALS:

Not remarkable.

SPLEEN:

The spleen weighs 130 grams. The capsule is tan to purple. On section the parenchyma is moderately firm and is red to purple. The Malpighian corpuscles are easily visible.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal extensive degeneration, necrosis, and interstitial hemorrhage of the myocardium. Here, there is slight to marked neutrophilic infiltration. This extends from the epicardium to the endocardium. Foci of fibrosis are scattered about. There is slight fatty infiltration of the myocardium in some sections. Some arteries and arterioles show intimal thickening. There is focal lymphocytic and neutrophilic infiltration of the pericardium in some sections.

Sections through the circumflex branch of the left coronary artery reveal extensive atherosclerosis with focal calcification. The lumen is almost totally occluded with densely adherent fibrino-cellular clot.

Sections through the other coronary arteries reveal similar changes. In many areas the atherosclerosis is more marked.

Aorta:

Sections reveal marked atherosclerosis with foci of ulceration and calcification.

Lungs:

Sections reveal slight emphysema and congestion. Some arteries show slight intimal thickening. A few brown granular pigmented macrophages are sprinkled about the alveoli.

Liver:

Sections reveal marked chronic passive congestion with degeneration and necrosis of the cord cells into the central zones. Some arteries and arterioles show slight intimal thickening.

Pancreas:

Sections reveal moderate fatty infiltration. There is focal fibrosis of acini. Some of the ducts show epithelial hyperplasia with squamous metaplasia, however, the ducts are not totally occluded.

Colon:

Sections through the diverticula reveal herniation of mucosa through the muscularis. Here, a thin layer of smooth muscle surrounds the diverticulum. The mucosa is intact. There is no evidence of inflammation.

Kidneys:

Sections reveal slight uneven fibrous thickening of the capsule. There is slight congestion. Some arteries and arterioles show slight intimal thickening. A honey-combed space consisting of markedly distended tubules containing hyaline-like substance and intact red cells is identified in one section. The smaller tubules contain hyaline casts. Here, there is slight lymphocytic infiltration. There is no evidence of malignant change.

Uterus:

Sections reveal extensive fibrosis. Thick walled vessels are abundant. The endometrium shows marked atrophy. A few cystic structures are identified.

Thyroid:

Not remarkable, except for slight intimal thickening in some arteries.

Adrenals:

Not remarkable. The pericapsular vessels show surprisingly little intimal thickening.

Spleen:

Not remarkable except for slight to moderate intimal thickening of arteries and arterioles.

Sternum:

The periosteum and attached skeletal muscle are not remarkable. The cortex is mature and the trabeculae are delicate. The marrow is not remarkable except for slight granular cell hyperplasia.

Rib:

The periosteum is partially detached. The cortex and trabeculae are composed of mature bone. The trabeculae are delicate. The marrow is not remarkable. The adjacent skeletal muscle is essentially normal.

Vertebra:

Sections reveal intact periosteum. The cortex is thin. The trabeculae are thin and delicate and show uneven decalcification. The marrow is not remarkable except for slight granular cell hyperplasia.

Iliac Crest:

The periosteum and attached skeletal muscle are not remarkable. The cortex and trabeculae are composed of mature bone. The trabeculae are delicate. The marrow is not remarkable.

CASE NO. 9

A-232-56

AGE: 62

DATE OF DEATH: 3-21-56

DATE OF AUTOPSY: 3-21-56, 9:30 am.

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Robert V. Davis

CHIEF DIAGNOSIS:

1. Mesenteric thrombosis with gangrene of the small bowel and cecum.
2. Rheumatic type deformity of the mitral valve (strenosis) marked.
3. Cardiac hypertrophy and dilation, 1150 grams.
4. Left auricular thrombosis, marked.
5. Pulmonary congestion and edema.
6. Portal cirrhosis, marked.

COMMENT:

The immediate cause of death in this case was the result of thrombosis of the superior mesenteric artery with gangrene of the small bowel and cecum. The embolus undoubtedly arose in the left auricle.

The thrombosis of the left auricle with dilation plus the mitral strenosis certainly added significantly to the terminal episode.

The portal cirrhosis was marked and undoubtedly added materially to the final episode.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white man who appears the stated age. It measures 73 inches in length and weighs an estimated 200 pounds. The scalp is covered with long grey hair with slight receding over the forehead. Embalming precludes examination of the eyes and nasopharynx. The nares are not remarkable. The ear canals are dry. Needle puncture wounds and ecchymoses lie in the right antecubital fossa. The external genitalia are essentially normal. The hair distribution is that of a normal adult male. Focal brown discoloration with atrophy of the skin are scattered about ankles, most marked on the left side. The largest measures 5.0 x 2.5 cm. A thin pliabl superficial scar measuring 8.0 x 7.0 cm. lies over the lateral aspect of the rig ankle.

PRIMARY INCISION:

The usual Y shaped incision is made revealing a 3.0 cm. layer of yellow lobulated fat. The musculature is dark red, well developed and moist.

SEROUS CAVITIES:

An extimated 300 cc. of blood lies in the peritoneal space. There is dark red to purple discoloration of the entire small bowel and about one-half of the ascending colon including the cecum. The serosa in some areas is slightly granular. The bowel and stomach are moderately distended. The organs lie in normal relationship. The liver does not extend beneath the costal cartilage. The capsule is tawny yellow and nodular. The nodules vary in size from 1.0 to 7.0 mm. The right leaf of the diaphragm lies at the level of the 5th rib and the left leaf lies at the level of the 5th intercostal space.

The pleural spaces contain no excess of free fluid. The diaphragmatic surface of the right lower lobe is densely adherent to the diaphragm.

The pericardial space contains a few cc. of strew colored fluid. The parietal pericardium is densely adherent to the anterior surface of the heart. The heart is markedly enlarged and rotated to the left. The greatest transverse diameter is 18.0 cm.; base to apex, 15.1 cm.; transverse diameter at the base, 13.0 cm.; and AP diameter, 10.0 cm. The left auricle measures 17.0 cm. in diameter.

HEART:

The heart weighs 1150 grams. Sections through the myocardium reveal no abnormalities. The left ventricular myocardium measures 12.0 to 15.0 mm. in thickness and the right ventricular myocardium averages 7.0 to 8.0 mm. in thickness. The left auricle is markedly dilated measuring up to 17.0 cm. in diameter. The chamber is filled with organizing thrombus showing periperal organization. Here, the wall measures 1.0 cm. in thickness. The right auricle shows distention and measures 12.0 cm. in diameter. Clots are not present. The auricular appendage is normal.

The ventricles are normal in size. The interventricular and interauricular septa are intact. The valves are grossly normal, with the exception of the mitral which shows marked strenosis. The lumen admits the tip of the little finger. There is dense fibrosis of the leaflets with focal calcification and fusion of the valve cusps. There is thickening of the chordae tendinae and some fibrosis of the papillary muscle. The circumferences of the valves at the rings are as follows: pulmonic, 9.0 cm., tricuspid, 15.0 cm., and aortic, 7.5 cm. The coronary arteries show slight sclerosis, however, no areas of significant narrowing or occlusion are identified. The aorta shows marked sclerosis with ulceration and calcification in the abdominal portion. Soft, friable clot resembling those in the left auricle lie at the bifurcation of the aorta. The lumen is not occluded.

LUNGS:

The right lung weighs 650 grams. The pleura is smooth, shiny, and is dark red to purple mottled with anthracotic pigment. Fibrous tags and lacerations are present over the diaphragmatic surface of the lower lobe. Crepitus is slightly decreased throughout. On section the surfaces are red and are markedly congested. Hemorrhagic liquid exudes freely from all surfaces. The bronchi and bronchioles are not remarkable. The pulmonary artery and vein are normal.

The left lung weighs 650 grams and is similar to the right.

LIVER:

The liver weighs 1560 grams. The surface is tawny yellow and nodular. These nodules vary in size from 1.0 mm. to about 7.0 mm. On section the surfaces are nodular. The latter measure up to 7.0 mm. in diameter. The surfaces are tawny yellow. The parenchyma cuts with greatly increased resistance. The biliary and portal systems are normal.

The gall bladder contains bile. The wall and mucosa are normal.

The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 170 grams. It is normal in shape, color, and consistency. There is moderate fatty infiltration.

GASTRO-INTESTINAL TRACT:

The esophagus shows focal hemorrhage of the mucosa.

The stomach contains a small quantity of hemorrhagic liquid and mucus. The mucosa and wall are not remarkable. The duodenum contains bile stained chyme. Beginning at the third part of the duodenum extending through jejunum, ileum, and cecum the bowel wall shows dark red to purple discoloration. Here, the serosa is finely granular. The lumen is filled with gas and liquid blood. The mucosa shows far advanced degeneration and necrosis and in some areas is totally absent. The large bowel contains a small quantity of blood and fecal matter. The wall and mucosa are not remarkable. The superior mesenteric artery is filled with laminated grey-red clot.

GENITO-URINARY:

The right kidney weighs 250 grams. The capsule strips with ease revealing a dark red congested surface containing an occasional pit and inclusion cyst. The latter measures up to 5.0 mm. in diameter. The parenchyma bulges slightly beyond the capsule. The cortico-medullary line is sharp. The cortex is dark red to purple and averages 7.0 mm. in thickness. The medulla is pale red. The calyces, pelvis, and ureter are not remarkable.

The left kidney weighs 200 grams and is similar to the right, however, congestion is absent.

PROSTATE:

The prostate measures less than 3.5 cm. in diameter. No gross abnormalities are noted.

The urinary bladder is not remarkable.

The seminal vesicles are not remarkable.

The testes are not remarkable.

CASE NO. 9

SPLEEN:

The spleen weighs 300 grams. The capsule is dark red to purple. Occasional foci of fibrosis are scattered about. On section the parenchyma is firm and dark red to purple. The Malpighian corpuscles are not easily visible grossly.

LYMPH NODES:

Not remarkable with the exception of the tracheo-bronchial nodes which show some enlargement and marked anthracosis.

BONE MARROW:

The rib, sternal, vertebral, and iliac marrow is dark red and abundant.

THYROID:

Not remarkable.

ADRENALS:

Not remarkable.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal intimal thickening of arteries and arterioles. Some of the latter show almost total luminal obliteration. Foci of interstitial and perivascular fibrosis of the myocardium are scattered about. There is slight focal fatty infiltration.

Sections through the wall of the right auricle reveal an adherent clot showing organization at the periphery. Here, the auricular wall shows focal calcification. Lymphocytes are sprinkled about. Aggregates are identified in some sections.

Aorta:

Sections reveal marked atherosclerosis.

Superior mesenteric artery:

Sections reveal some uneven thickening. A small portion of a fibrinocellular clot lies in the lumen.

Lungs:

Sections reveal focal atelectasis, some edema and congestion. Scattered about the areas of atelectasis are slight to moderate numbers of neutrophils lying within the alveolar spaces. One section shows uneven fibrous thickening with anthracosis of the pleura. Here, there is focal calcification. Some arteries and arterioles show intimal thickening. Vessels filled with neutrophils are identified. Some bronchioles are filled with mucus and desquamated epithelium.

Liver:

Sections reveal distortion of the normal lobular architecture due to broad bands of dense connective tissue extending from triad to triad. Lymphocytes are lightly sprinkled about the connective tissue. In some areas, biliary radicles are acentuated. There is slight (1 plus) fatty metamorphosis. Some arterioles show slight intimal thickening.

Pancreas:

Sections reveal slight fatty infiltration. A few thick walled vessels are identified. The attached duodenum shows post mortem autolysis. Sections through the bowel reveal extensive degeneration and necrosis of all layers. There is marked congestion and some interstitial hemorrhage. The muscularis shows the least change of any of the layers. The mucosa is most severely affected. Lymphocytes are sprinkled about the serosa of many of the sections.

Kidneys:

Sections reveal moderate intimal thickening and hyalinization of many arteries and arterioles. There is slight subcapsular lymphocytic infiltration in some areas. One section shows a focus of atrophy, fibrosis, and marked lymphocytic infiltration. Here, the glomeruli and associated structures show fibrosis and hyalinization. There is some parenchymatous degeneration.

Prostate:

Not remarkable.

Spleen:

Sections reveal uneven fibrous thickening of the capsule. Here, there is slight to moderate lymphocytic infiltration. The arteries and arterioles show intimal thickening and hyalinization. Some show significant luminal narrowing.

Thyroid:

Sections reveal innumerable vessels showing varying thickness of wall. A solitary circumscribed nodule is composed of large well filled follicles. There is no evidence of malignant change.

Adrenals:

Not remarkable except for slight intimal thickening of some pericapsular arterioles.

Sternum:

The periosteum is densely adherent and is not remarkable. The cortex and trabeculae are composed of mature bone. The trabeculae are delicate. The marrow cells show an equal fat to cellular ratio, however, there is some granular cell hyperplasia.

Vertebra:

The periosteum and attached skeletal muscle are not remarkable. The bone is composed of mature bone. The trabeculae are delicate. The marrow shows slight granular cell hyperplasia.

Rib:

The periosteum and attached skeletal muscle are not remarkable. There is some thickening of the cortex, however, the cortex is composed of mature bone. The trabeculae are delicate. The marrow is similar to that previously described.

Iliac Crest:

The periosteum is not remarkable. The cortex is composed of mature normal bone. The marrow shows some granular cell hyperplasia.

CASE NO. 10

US-46

AGE: 67

DATE OF DEATH: 10:30 pm. April 8, 1956

DATE OF AUTOPSY: 1:30 pm. April 9, 1956

PROSECTOR: Richard A. Call, M. D.

CHIEF DIAGNOSIS:

1. Lobar pneumonia, bilateral, pneumococcus type.
2. Chronic lymphatic leukemia, with infiltration of the liver, lymph nodes, kidneys, and brain.
3. Squamous-cell carcinoma of the skin of the neck with lymph node metastasis, local.

COMMENT:

The immediate cause of death in this case was due to acute, extensive pneumococcus lobar pneumonia. However, lymphatic leukemia and squamous-cell carcinoma of the neck were certainly important factors in the development of the terminal illness.

See previous biopsy reports and results of previous blood studies.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white man which appears the stated age. It measures 70" in length and weighs an estimated 150 lbs. The scalp is bald over the dome, elsewhere, it is covered with brown hair. Innumerable yellow tumor masses (Xanthoma) measuring from 1 to 6 mm. lie about the upper eyelids. The ear canals are dry. The nares are not remarkable. The pupils are round and equal. There is edentia totalis. The naso-pharynx is not remarkable. Lying posterior and cadual to the left ear, are two deep ulcers, the craters of which contain thick grey purulent exudate. The margins are elevated and are red to yellow. The larger measures 2cm. in diameter and the smaller measures 1.5 cm. in diameter. An indurated mass lies cadual and slightly anterior to these two ulcerated lesions. It measures 6 cm. in diameter. The skin surrounding the ulcers, and overlying the mass shows a deep brown pigmentation and grossly appears atrophic. A linear scar, measuring 15 cm. in length lies over the epigastric area of the abdomen. There is a well healed herniorrhaphy scar on the left side. The external genitalia are not remarkable. The hair distribution is that of an adult male. The dependent portions of the body show marked cyanosis. Bony abnormalities and exostosis are not identified.

PRIMARY INCISION:

The usual Y shaped incision reveals a 3 cm. layer of yellow lobulated fat. The musulature is dark red, well developed, and moist.

SEROUS CAVITIES:

The organs lie in normal relationship. The liver extends 5 cm. beneath the costal cartilage in the right mid-clavicular line and about 7 cm. beneath the

the xyphoid process in the midline. The right leaf of the diaphragm lies at the level of the 5th intercostal space and the left leaf lies at the level of the 5th rib.

The pleural spaces contain no excess of free fluid. Fibrinous adhesions cover the right lower lobe. Otherwise, no abnormalities are noted.

The pericardial space contains no excess of free fluid. The heart is normal in contour and position.

HEART:

The heart weighs 300 gm. Multiple sections through the myocardium reveal no abnormalities. The left ventricular myocardium averages 1.2 cm. in thickness and the right ventricular myocardium averages 3 mm. in thickness. The chambers are of normal size. The interventricular and interauricular septa are intact. The auricu appendages are esentially normal. The valves are grossly normal. The circumferenc at the rings are as follows: pulmonic 7 cm, tricuspid 12 cm., mitral 9.5 cm, and aortic 6.5 cm. Sections through the coronary arteries reveal slight sclerosis. There are no areas of significant narrowing or occulsion.

The aorta shows only slight focal atherosclerosis, becoming more marked as it is descended.

LUNGS:

The right lung weighs 1200 gm. The lower lobe pleura is dark red to purple and covered by a mucoid, shiny exudate. Here, there is marked decreased crepitus. The upper lobes show normal crepitus. On section the entire lower lobe shows marked consolidation. Thick mucopurulent liquid exudes freely from the surfaces. The parenchyma is red to purple. There is a sharp demarcation between normal and abnormal lung parenchyma. Sections through the upper and middle lobe reveal red discoloration. There is moderate congestion. Foci of "plate-like" atelectasis are identified. The bronchi and bronchioles contain small amounts of mucopurulent liquid. The pulmonary vessels are normal.

The left lung weighs 630 grams. The left lung shows similar but less marked changes than those previously described. The pulmonary arteries are not remarkable The bronchi and bronchioles contain some mucoid liquid.

LIVER:

The liver weighs 2,800 gm. There is accentuation of the lobular pattern visible through the capsule. The capsule is smooth, shiny, and tan, mottled with 1 to 5 mm. sized foci of grey. On section the lobular pattern is distorted, due to infiltration of grey substance. The parenchyma is tan mottled with 1 to 5 mm.sized foci of grey. It is soft, friable, and bulges beyond the capsule. The biliary radicles and portal vein are patent.

The gall bladder is not remarkable. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 150 gm. and shows slight to moderate fatty infiltration. Otherwise, no abnormalities are noted.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable. The stomach contains mucus. The mucosal and rugal patterns are normal. The small bowel contains bile stained chyme, the large bowel contains a small quantity of brown fecal matter. Abnormalities are not identified.

GENITO-URINARY:

The right kidney weighs 150 grams. The capsule strips with ease revealing a smooth, shiny, tan surface. On section the cortico-medullary lines are sharp. The cortex is tan and averages 9 mm. in thickness. The medulla is purple. There is moderate bulging of the parenchyma beyond the capsule. The calices, pelvis, and ureter are not remarkable.

The left kidney weighs 130 gm. and is similar to the right.

PROSTATE:

Sections reveal innumerable nodules measuring up to 1.5 cm. in diameter. These are yellow grey. The seminal vesicles contain thick, grey-tan mucoid liquid.

SPLEEN:

The spleen weighs 1000 gm. The capsule is red mottled with irregular foci of purple. In some areas, fibrinous exudate covers the purple foci. On section the parenchyma is moderately soft. The surfaces are red mottled with irregular foci of purple, yellow, and grey. These (infarcts) vary in size from 1 to 10 cm.

LYMPH NODES:

All lymph nodes examined show marked enlargement. The nodes at the base of the neck on the left measure 6 cm. in diameter and are replaced by grey, gritty, firm tumor tissue. Elsewhere, the lymph nodes are soft, moderately friable, and a homogeneous grey. The parenchyma bulges markedly beyond the capsule. A few of the nodes are matted. The largest single node measures 6 cm. in diameter and lies adjacent to the pancreas. The hepatic node measures 4 cm. in diameter and shows similar changes.

BONE MARROW:

The bone marrow is pale yellow red. Sections are taken from the rib, sternum, vertebra, and right iliac crest.

THYROID:

There is marked atrophy of the left lobe of the thyroid. The right lobe measures about 3 cm. in its greatest diameter. Sections reveal no abnormalities.

ADRENALS:

Not remarkable.

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PITUITARY:

Not remarkable.

HEAD:

No abnormalities are noted in the scalp or calvarium. The meninges, paranasal sinuses, mastoid air cells, and middle ears are normal.

BRAIN:

The brain weighs 1250 gm. The hemispheres are symmetrical. There is slight congestion of the arachnoidal vessels. Sections made through the cerebral hemispheres reveal no gross abnormalities except for some congestion.

Sections through the brain stem and cerebellum reveal no abnormalities.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal moderate fatty infiltration of the right ventricular myocardium. Some vessels show slight intimal thickening. Brown granular pigment lies within the cytoplasm of many of the fibers.

The aorta shows slight atherosclerosis.

Lungs:

Sections reveal the fibrinous stage of lobar pneumonia. Some sections show moderate congestion with slight edema. There is slight anthracosis.

Liver:

The most significant alteration is the extensive infiltration of the periportal fibrous tissue by lymphocytes. (Lymphatic leukemia). There is slight lymphocytic infiltration throughout the sinusoids. The infiltrating tumor cells appear as mature lymphocytes, similar to those seen in the peripheral blood. In some areas there is distinct distortion of the normal lobular pattern.

Pancreas:

Sections reveal slight to moderate fatty infiltration. No additional abnormalities are noted.

Bowel:

Not remarkable.

Kidneys:

There is leukemic infiltration of the capsule and parenchyma, most marked in the perivascular areas. It involves both the cortex and the medulla. Some arteries and arterioles show slight to moderate intimal thickening.

Prostate:

Sections reveal nodular hyperplasia of the prostate with slight to moderate lymphocytic infiltration.

Spleen:

Sections reveal distortion of the normal histologic architecture, due to extensive infiltration by leukemic cells. In some areas, however, the sinusoids are moderately distended and contain red cells. There is uneven fibrous thickening of the capsule and subjacent tissue.

Lymph nodes:

Sections reveal extensive replacement of the normal histologic architecture by leukemic infiltrate. The cells are mature lymphocytes and appear in masses. Vascular spaces are moderately abundant. There is marked infiltration of the capsule. Brown granular pigmented macrophages are moderately abundant.

Neck Tumor:

Sections reveal extensive degeneration and necrosis of the overlying epithelium, with replacement by exudate and connective tissue. There is marked fibrous tissue proliferation with hyalinization, increased vascularity and slight lymphocytic and plasma-cell infiltration. Lying deep in the subcutaneous fibro-fatty tissue are nests of malignant squamous type cells. Intercellular bridges are identified. Epithelial pearls lie trapped in dense connective tissue. Some show beginning degeneration.

Thyroid:

Sections reveal well filled follicles, varying widely in size. There is slight lymphocytic infiltration. Ill-defined nodules composed of large well-filled follicles are present. There is focal calcification of the capsule.

Adrenals:

Not remarkable, except for leukemic infiltration of the medulla. The capsular arteries show intimal thickening.

Brain:

Some sections reveal marked perivascular leukemic infiltration, otherwise no abnormalities are noted.

Sternum:

Sections reveal an intact periosteum. Cartilage showing focal calcification is abundant. There is uneven decalcification of the cortex. The cortex and trabeculae are composed of mature bone. The marrow spaces are entirely obliterated by infiltration of leukemic tumor cells. Similar cells infiltrate the periosteum.

Vertebra:

The cortex shows focal thickening. The bone, however, is mature. The marrow spaces are filled with leukemic tumor cells. Tumor cells infiltrate the periosteum.

Rib:

Sections reveal an intact periosteum with attached skeletal muscle. The cortex shows focal thickening that is composed of mature bone. The trabeculae show uneven decalcification. The marrow is completely replaced by leukemic cells.

CASE NO. 11

US-47

AGE: 80

DATE OF DEATH: 9:00 am. April 10, 1956

DATE OF AUTOPSY: 2:00 pm. April 10, 1956

PROSECTOR: Richard A. Call, M. D.

ASSISTANTS: Robert V. Davis and John Koense

CHIEF DIAGNOSIS:

1. Arterio and arteriolosclerosis, extensive, marked.
2. Subdural hemorrhage, recent, moderate.
3. Cerebral infarction, old, with slight recent extension.
4. Bronchopneumonia, early, slight.
5. Obesity, marked.
6. Polyp of stomach, benign.
7. Hydrops of gall bladder.
8. Chronic cholecystitis with cholelithiasis.
9. Hemangioma of scalp.
10. Hamartoma of the lung.
11. Nodular hyperplasia of prostate with infarction, recent.
12. Nodular thyroid, slight.
13. Adenoma of kidney.

COMMENT:

The immediate cause of death in this case was due to a combination of factors, the most important was the arterio and arteriolosclerosis with its attendant complications. The vessels in the brain showed marked intimal thickening. This undoubtedly explains away the senile psychosis. The etiologic factors involved in the subdural hematoma are undetermined, however, sclerosis of the vessels undoubtedly played a major roll.

The bronchopneumonia was early and slight, however, it added significantly to the final demise. The polyp of the stomach was of interest but of no terminal importance.

GENERAL DESCRIPTION:

This is the body of a well developed, obese white man, which appears the stated age. It measures 65" in length and weighs an estimated 220 lbs. The scalp is covered by grey hair admixed with black. A hemangioma lies over the left forehead and extends as far posterior as the left parietal area. Some lesions are polypoid and measure up to 1 cm. in diameter. The ear canals are dry. There is edentia partialis. The remaining teeth show marked caries. The pupils are round and equal measuring 4 mm in diameter. The irides are brown. The nasopharynx is not remarkable. An excoriation measuring 1 cm. in diameter lies in the left anticubital fossa. There is atrophy of the musculature of the left arm. The external genitalia are not remarkable. There is some brownish discoloration of the skin of the scrotum and on the inside of the thighs. The hair distribution is that of a normal adult male. Bony abnormalities and exostosis are not identified.

PRIMARY INCISION:

The usual Y shaped incision reveals a 5 cm. layer of yellow lobulated fat. The musculature is dark red, well developed, and moist.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. The omentum and mesentery are heavily laden with fat. The liver does not extend beneath the costal cartilages. The right leaf of the diaphragm lies at the level of the 5th intercostal space and the left leaf lies at the level of the 5th rib. The appendix is essentially normal.

The pleural spaces contain no excess of free fluid. Fibrous adhesions partially obliterate both spaces, most marked on the right.

The pericardial space contains no excess of free fluid. The heart is normal in contour and position.

HEART:

The heart weighs 440 gm. Multiple sections reveal no abnormalities in the myocardium. The left ventricular myocarium averages 1.5 cm. in thickness and the right ventricular myocardium averages 4 to 5 cm. The interventricular and interauricular septa are intact. The auricular appendages contain post mortem clot. The chambers are of normal size. The valves are grossly normal. The circumferences at the rings are as follows: pulmonic 8 cm., tricuspid 12.5 cm., mitral 10 cm., and aortic 8 cm. Sections through the coronary arteries reveal marked sclerosis with extensive calcification. There are innumerable foci of significant narrowing, however, total occulsion is not identified.

The aorta shows slight to moderate atherosclerosis, becoming more marked as it is descended. Foci of calcification are spotty.

LUNGS:

The right lung weighs 600 gm. Fibrous adhesions are attached to the surface. There is some decreased crepitus, most marked in the lower lobe. Here, the pleura is dark red to purple, mottled with anthracotic pigment. The upper lobe shows normal crepitus and the pleura is red to dark red. On section copious quantities of thick-grey liquid exude freely from the bronchi and bronchioles of the lower lobe. Here, frothy and hemorrhagic liquid exude from the parenchyma. The upper and middle lobe of the parenchyma is red to dark red and the lower lobe is purple.

The left lung weighs 420 gm. and is similar to the right except for a 2 cm. sized tumor which lies at the periphery of the upper lobe in the mid-portion. Sections reveal gritty, slightly calcified tissue, which is grey mottled with red. The bronchi and bronchioles contain copious quantities of hemorrhagic mucoid liquid. The pulmonary arteries are not remarkable.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable. The stomach contains a few cc. of mucus. Lying in the midportion of the stomach, attached to the posterior wall, is a polyp measuring 4 cm. x 1 cm. It is attached to a stock measuring 2 cm. in length. The latter measures up to 2 mm. in diameter. The surfaces of the polyp are red to purple. Otherwise, the mucosal and rugal patterns are not remarkable. The small bowel contains bile stained chyme. The large bowel contains soft fecal matter. No abnormalities are noted in the bowel.

LIVER:

The liver weighs 1200 gm. The surface is tan to purple and the margins are rounded. On section copious quantities of hemorrhagic liquid exude freely from the surfaces. There is accentuation of the lobular pattern. The billary radicles and portal vein are not remarkable.

The gall bladder contains pale grey mucoid liquid and several mullberry type calculi, varying in size from 1 mm. to 2 cm. The cystic duct is occluded.

PANCREAS:

The pancreas weighs 120 gm. and is normal in shape, color, and consistency. On section there is moderate fatty infiltration.

GENITO-URINARY:

The right kidney weighs 160 gm. The capsule strips with slight difficulty, revealing a finely granular red to tan surface. The cortico-medullary line is partially obscured. The sectional surfaces are finely granular. A 5 mm. sized grey yellow nodule lies subjacent to the capsule. The parenchyma measures a total of 1.5 cm. in thickness. This narrowing is due to marked increase in the peri-pelvic fat. The calices, pelvis, and ureter are not remarkable.

The left kidney weighs 150 gm. and is similar to the right. In addition a cystic structure measuring 1.5 cm. in diameter lies in the lower pole. The lumen is filled with borwn liquid. The inner lining is smooth, shiny, and grey to tan.

PROSTATE:

The prostate measures 6 cm. in its greatest diameter. Sections reveal innumerable nodules, measuring up to 1.5 cm. The largest shows extensive hemorrhage. It is red to purple in color and moderately firm. The other nodules are grey to tan. The seminal vesicles contain tan mucoid liquid.

SPLEEN:

The spleen weighs 100 gm. The capsule is pale red to purple. On section the parenchyma is moderately firm and is pale red mottled with grey. The Malpighian corpuscles are easily visible grossly.

LYMPH NODES:

Not remarkable.

BONE MARROW:

The marrow is dark red and abundant. Samples are taken from the rib, sternum, vertebra, and right iliac crest.

THYROID:

Normal in size, shape, color, and consistency. Sections reveal solitary nodule, measuring 1 cm. in diameter showing central cystic degeneration. The surfaces are tan and show normal colloid sheen.

ADRENALS:

Not remarkable.

PITUITARY:

Not remarkable.

HEAD:

No abnormalities are noted in the scalp or calvarium.

BRAIN:

The brain weighs 1320 gm Lying in the subdural space on the right side is a layer of thick, organizing blood clot. It measures up to about 5 mm in thickness and covers most of the parietal, temporal, and frontal lobes.

The meninges are not otherwise remarkable The cerebro-spinal fluid is hemorrhagic The cerebral hemispheres are slightly asymmetrical. Lying on the under surface of the right frontal lobe, adjacent to the anterior pole of the temporal lobe is an area of marked atrophy with brownish discoloration. It measures 5 cm in diameter. There is similar brownish discoloration with atrophy of the gyri and widening of the sulci over the right occipital lobe. A single section through the mid-portion of the brain, at the level of the pons and cerebral peduncles reveals extensive softening and degeneration with focal hemorrhage of the right basal ganglia. The left does not appear grossly involved.

The cerebellum and brain stem are not remarkable. There is extensive sclerosis of the basalar arteries and branches. Significant foci of narrowing are abundant, however, there are no areas of occlusion identified grossly.

BRAIN DISSECTION By Dr. Peter Lindstrom:

This is an adult-sized human brain hardened in formalin, and moderately distorted from the fixation procedure. The basilar arteries show extensive atheromatous degeneration. The leptomeninges are normal except for a slight thickening of the dorsal surfaces. The brain was dissected in a horizontal fashion. The essentially gross pathology is a large cerebral softening involving the left parietal-occipital lobe. This softening extends from the surface clear into the posterior horn of the left lateral ventricle. The softening, itself, measures about 4.5 x 3.2 cm. in diameter, and shows a variation of cystic brownish discoloration, and indicates a very old CVA probably secondary to a thrombosis. Its age is surely more than a couple of years, and may well be 10 years or more. In addition, there are cystic degenerations of the basal ganglia on both sides, of the type seen in cerebral arteriosclerosis. A small necrosis is also seen close to the anterior limb of the left internal capsule. This necrosis measures about 3 mm. in diameter. Sectioning through the brain stem and cerebellum reveals no gross abnormalities.

IMPRESSION:

1. Cerebral arteriosclerosis, severe.
2. CVA with extensive gliosis and softening of the left parietal-occipital lobe.
3. Cystic degeneration of the basal ganglia, secondary to cerebral arteriosclerosis.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal focal fibrous replacement of the myocardium. Arteries and arterioles show marked intimal thickening, with lumenal narrowing. Some show almost total obliteration. In some areas, there is significant degeneration of the myocardium, with beginning loss of the cross striations. Brown granular pigment is abundant within the cytoplasm of the myocardial fibers. Sections through the coronary arteries reveal marked sclerosis with almost total lumenal obliteration.

Lungs:

Sections reveal congestion, edema, and early bronchopneumonia. Many of the arteries and arterioles show slight to marked intimal thickening with significant lumenal narrowing. There is slight emphysema. The bronchioles are not remarkable, except for slight fibrous thickening of the walls.

Sections reveal a well circumscribed and partially encapsulated nodular mass, composed of cartilage, connective tissue, and bronchial epithelium. There is fat tissue interspaced between the fragments of cartilage near the periphery and nodular masses of connective tissue partially covered by respiratory type epithelium. Partially surrounding this mass and extending deep into the mass are duct-like structures lined by esentially normal respiratory-type epithelium. Lymphocytes are lightly sprinkled about. There is no evidence of malignant change.

Liver:

Sections reveal some parenchymatous degeneration and congestion. There is slight lymphocytic infiltration of the periportal fibrous tissue.

Pancreas:

Sections reveal moderate fatty infiltration. Some of the arteries and arterioles show intimal thickening.

Stomach:

Sections reveal a polypoid mass showing some evidence of degeneration. It is composed of loose to dense connective tissue showing lymphocytic infiltration. Bizarre, mucus-type glands are scattered about. These glands are filled with mucus. The epithelium is atrophic in some areas and essentially normal in others. There is no evidence of malignant change (gastruc-polyp).

Kidneys:

The most remarkable alteration is the moderate to marked intimal thickening of the arteries and arterioles. Hyalinized glomeruli are moderately abundant. Small foci of atrophy and fibrosis showing lymphocytic infiltration lie subjacent to the capsule. There is focal lymphocytic infiltration of the peri-pelvic fibro-fatty tissue. An adenoma lies just subjacent to the capsule.

Prostate:

Sections reveal extensive degeneration and necrosis with congestion and marked interstitial hemorrhage (infarct). Elsewhere, prostatic glands are scattered about. There is slight lymphocytic infiltration. There is no evidence of malignant change.

Spleen:

Sections reveal extensive thickening and hyalinization of the arteries and arterioles. The fibrous tissue trabecula are prominent. There is moderate congestion.

Thyroid:

Not remarkable except for thick-walled vessels, some of which show medial calcification.

Adrenals:

Sections reveal marked intimal thickening and hyalinization of the pericapsular arteries and arterioles. Some show almost total lumenal obliteration. There is slight focal depletion of the cortical-lipid.

Pituitary:

Not remarkable.

Brain:

Sections reveal marked intimal thickening and hyalinization of many arteries and arterioles. Some sections reveal marked extensive rarifaction of the brain parenchyma with replacement by connective tissue. Macrophages and gitter cells are moderately abundant. In some areas, there is cyst formation. Brown granular pigmented macrophages are abundant in some areas. Other sections reveal degeneration and necrosis with slight gitter cell infiltration. Here, the vessels show marked intimal thickening with hyalinization.

Calvarium:

The periosteum is absent over most of the section. The cortex and trabeculae are composed of mature cancellous bone. The trabeculae are broad and in some areas there is a suggestion of a mosaic pattern. The marrow spaces contain fat.

Sternum:

The periosteum and attached skeletal muscle are not remarkable. The cortex is thin and the trabeculae are delicate. Both are composed of mature bone. The marrow shows no abnormalities except for granular cell hyperplasia.

Vertebra:

The periosteum is not remarkable. Innumerable thick-walled vessels are scattered about. Some show almost total luminal obliteration. The cortex is thin and the trabeculae are delicate. Both are composed of mature cancellous bone. The marrow shows slight granular cell hyperplasia.

Rib:

Sections reveal intact periosteum with attached skeletal muscle. No histologic abnormalities are noted. The cortex and trabeculae are composed of mature bone. The latter show uneven decalcification. Here, the cellular marrow shows granular cell hyperplasia.

Iliac Crest:

The periosteum is intact. The attached skeletal muscle is not remarkable. The cortex and trabeculae are composed of mature cancellous bone. The trabeculae show uneven decalcification. The marrow is similar to that previously described.

CASE NO. 12

A-235-56

AGE: 41

DATE OF DEATH: 4:30 pm, April 14, 1956

DATE OF AUTOPSY: 2:00 pm, April 16, 1956

PLACE: Cedar City, Utah

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Mr. Robert V. Davis

CHIEF DIAGNOSIS:

1. Occlusion of the anterior descending branch of the left coronary artery, recent.
2. Myocardial infarction, old.
3. Atherosclerosis of the coronary arteries, marked.

COMMENT:

The immediate cause of death was the result of occlusion of the anterior descending branch of the left coronary artery.

It is rather unusual to find such a marked degree of coronary atherosclerosis in the absence of significant vascular changes elsewhere. The scars in the myocardium indicate repeated previous episodes of coronary occlusion with infarction. This is somewhat substantiated by the distention of the right coronary artery.

Other significant abnormalities were not demonstrated.

There is no direct anatomical relationship demonstrated between the previous "snowslide injury" and the cause of death.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white man, who appears the stated age. It measures 70 inches in length and weighs 165 pounds. The scalp is covered with fine brown hair showing receding at the forehead and greying at the temples. Embalming precludes examination of the eyes and nasopharynx. The ear canals are dry. Superficial lymph nodes are not palpable. The external genitalia are not remarkable. The hair distribution is that of an adult male.

PRIMARY INCISION:

The usual Y shaped incision reveals a one centimeter layer of yellow lobulated fat over the lower abdominal midline. The musculature is dark red, well developed, and moist.

SEROUS CAVITIES:

The peritoneal space contains embalming fluid. Trocar lacerations are scattered about the liver, diaphragm, and small bowel. The organs lie in normal relationship. The appendix is present and is not remarkable. The liver does not extend below the costal cartilages. The liver surface is tan and the margins are acute. The right leaf of the diaphragm lies at the level of the fourth intercostal space and the left leaf lies at the level of the fifth rib. The kidneys and spleen are normal to palpation. The ureters are not dilated.

The pleural spaces contain no excess of free fluid. Adhesions are not present

The pericardial space contains a few cc. of straw colored fluid. The pericardium is normal. The heart is normal in contour and position. Trocar lacerations are present on the postero-lateral surface of the left ventricle. The diameters in situ are as follows: Greatest transverse diameter, 14.0 cm., transverse diameter at the base, 8.0 cm., base to apex, 10.0 cm., AP diameter, 7.0 cm.

HEART:

The heart is of normal size. Multiple sections throughout the myocardium reveal innumerable foci of fibrosis most marked over the anterior and lateral surfaces of the left ventricular myocardium. Here, there is marked congestion with foci hemorrhage. The scars extend from the base to the apex and vary in size from 5.0 mm. to 1.5 cm. None of scars extend from the endocardium to the pericardium. Elsewhere, the myocardium is not grossly remarkable. The left ventricular myocardium averages 12.0 mm. in thickness and the right ventricular myocardium averages 3.0 to 4.0 mm. in thickness. The valves are grossly normal. The circumferences at the rings are as follows: pulmonic, 6.5 cm., tricuspid, 11.0 cm., mitral, 9.0 cm., and aortic, 5.6 cm. The chambers are of normal size. The auricular appendages contain post-mortem clots, but are otherwise not remarkable. The interventricular and interauricular septa are intact. Sections through the coronary arteries reveal total occlusion of the anterior descending branch of the left, beginning 1.2 cm. distal to its origin. Elsewhere, there is marked sclerosis with thickening and almost total luminal obliteration. In many areas the lumen measures less than 1.0 mm. in diameter. Sections through the right coronary artery reveal moderate distention with a single focus of sclerosis. Here, the lumen measures about 2.0mm. in diameter. Elsewhere, the vessel measures about 6.0 to 7.0 mm. in diameter. The terminal branches of the right coronary artery show significant narrowing, however, no areas of total occlusion are identified.

The aorta and great vessels show only slight sclerosis. Foci of calcification and ulceration are not present. Other arteries show only slight sclorosis.

LUNGS:

The lungs are of normal size and shape. The pleura is salmon-pink to grey mottled with small patches of anthracotic pigment. Crepitus is normal throughout all lobes. The sectional surfaces are salmon-pink to grey. Embalming fluid exudes freely from the surfaces. The vessels, bronchi, and bronchioles are not remarkable. No gross abnormalities are identified in either lung.

The trachea and bronchi contain small quantities of mucus. The mucosa is smooth, shiny, and grey to red.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable.

The stomach contains a few cc. of mucus and undigested food. The mucosa is not remarkable. The rugal pattern is present. Lying 2.0 cm. distal to the pyloric ring in the posterior wall of the duodenum is a depressed epithelialized crator resembling a healed ulcer. It measures about 1.0 cm. in diameter. The adjacent mucosa is puckered. The small bowel contains bile-stained chyme. The large bowel contains a small amount of soft brown fecal matter. No abnormalities are noted in the bowel wall or mucosa.

LIVER:

The liver is normal in size and shape. The surface is tan. On section the lobular pattern is not remarkable. The perenchyma is discolored tan to brown due to embalming. The biliary radicles and portal vein are not remarkable.

The gall bladder contains a few cc. of bile. The common and cystic ducts are patent.

PANCREAS:

Normal in size, shape, color, and consistency. On section no abnormalities are noted grossly.

GENITO-URINARY TRACT:

Each kidney is normal in size, shape, color and consistency. The capsules strip with ease realing a smooth, shiny pale tan to red surface. On section the cortico-medullary lines are sharp. The cortices average about 8.0 mm. in thickness and are tan. The medulla is red to purple. The calices, pelvis, and ureters are not remarkable.

The urinary bladder contains a few cc. of straw-colored fluid. The wall and mucosa are normal.

The prostate measures 3.5 cm. in its greatest diameter. On section no gross abnormalities are noted. A few sand-like particles are sprinkled throughout.

The seminal vesicles contain tan mucoid liquid.

THYROID:

Normal in size, shape, color, and consistency.

ADRENALS:

Normal in size, shape, color, and consistency.

SPLEEN:

Normal in size, shape, color, and consistency. On section the surfaces are dark red to purple. The Malpighian corpuscles are easily visible grossly. Adhesio are not present.

THORACIC CAVITY:

No anatomical deformities are noted in the thoracic cage. The ribs are intac The parietal pleura is smooth and shiny. Adhesions are not present. There is no deformity of the thoracic vertebrae. The thoracic organs lie in normal relationshi and normal position.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal extensive interstitial and perivascular fibrosis of the myocardium. A few lymphocytes and macrophages are sprinkled about these scarred areas. An occasional nest of lymphocytes lies within the myocardium. These are scanty. Some arterioles show marked intimal thickening. The left coronary artery shows extensive atherosclerosis with almost total luminal obliteration. Lymphocytes neutrophils and pigmented macrophages are abundant in all sections. Foci of calcification are scattered about. One section shows hemorrhage into an atheromatous plaque with further narrowing of the lumen. In some sections lipoid laden macrophages line the lumin. In most places the endothelium is not present. At one level the lumen is obliterated by a fibrin clot which is densely adherent at the periphery. Multinucleated giant cells lie in the wall. Lymphocytic aggregates circle the vasa vasorum and are scattered about the adventitia and muscularis.

Aorta:

Sections reveal only minimal changes of atherosclerosis. The vasa vasorum within the adventitia show slight perivascular lymphocytic infiltration.

Lungs:

Sections reveal no abnormalities except for slight congestion. Anthracotic pigment is extremely scanty.

Liver:

Sections reveal only slight lymphocytic infiltration of the periportal fibrous tissue.

Pancreas:

Not remarkable.

Duodenum:

Not remarkable except for lymphocytic infiltration of the mucosa.

Kidneys:

Not remarkable except for slight congestion.

Prostate:

Sections reveal innumerable corpora amylacea. No additional abnormalities are identified.

Thyroid:

Not remarkable,

Adrenals:

Not remarkable except for focal autolysis of the cortex. The peri-capsular arterioles show slight medial thickening.

Spleen:

Sections reveal only slight intimal thickening of the arteries and arterioles. There is slight moderate congestion, otherwise, no abnormalities are noted.

Vertebra:

Sections reveal intact periosteum. No histologic abnormalities are noted. The cortex and trabeculae are composed of mature cancellous bone showing uneven decalcification. The marrow shows no significant abnormalities.

Rib:

Sections reveal normal intact periosteum and skeletal muscle. The cortex and trabeculae are composed of mature bone. The latter, however, shows slight uneven decalcification. The marrow is not remarkable.

CASE NO. 13

A-236-56

AGE: Premature-newborn

DATE OF DEATH: April 18, 1956

DATE OF AUTOPSY: April 18, 1956, 9:30 a.m.

PROSECTOR: Richard A. Call, M. D.

CHIEF DIAGNOSIS:

1. Pulmonary hyaline membrane disease.
2. Congenital atelectasis.

COMMENT:

The immediate cause of death in this case was the direct result of the pulmonary hyaline membrane disease associated with extensive atelectasis.

No additional abnormalities of any significance are identified.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished, new born infant weighing 2500 gm. It measures 31.0 cm. crown-rump length and 48.0 cm. crown-heel length. The scalp is covered with fine hair. Embalming precludes examination of the eyes and nasopharynx. The ear canals are dry. The external genitalia are essentially normal.

PRIMARY INCISION:

Primary incision reveals a four mm. layer of yellow-gray lobulated fat. The musculature is dark red, well developed, and moist.

SEROUS CAVITIES:

A few cc. of deep straw colored fluid lies in the peritoneal space. The organs lie in normal relationship. The liver extends 3.0 cm. beneath the costal cartilage in the right midclavicular line and 4.0 cm. beneath the xiphoid process in the midline. The right leaf of the diaphragm lies at the level of the fourth intercostal space and the left leaf lies at the level of the fifth rib.

The pleural spaces contain no excess of free fluid. The lungs are not well expanded. The pericardial space contains a few cc. of straw colored fluid. The heart is normal in position and contour.

HEART:

The heart weighs 16 gm. Sections through the myocardium reveal no abnormalities. The valves are grossly normal. The chambers are of normal size. The interventricular septum is intact. The foramen ovale is patent but not functional. The ductus arteriosus is patent. The aorta is not remarkable.

Lungs:

Each lung weighs about 50 grams. There is marked decreased crepitus throughout all lobes. The surfaces are red to dark red and salmon pink at the periphery. Both lungs sink when placed in water. On section the surfaces are dark red to purple. Copious quantities of hemorrhagic liquid exude freely from the parenchyma. The vessels, bronchi, and bronchioles are not remarkable. Small fragments of lung parenchyma taken from the periphery float subjacent to the surface of the water.

Liver:

The liver weighs 100 grams. The capsule is smooth, shiny, and red-tan. On section the lobular pattern is present but not easily visible. The parenchyma bulges slightly beyond the capsule. The biliary radicles and portal vein are not remarkable.

The gall bladder contains a few cc. of bile. The common and cystic ducts are patent.

PANCREAS:

The pancreas is normal in size, shape, color, and consistency.

GASTRO-INTESTINAL:

The esophagus is not remarkable. The stomach contains a small quantity of mucus. The mucosal and rugal patterns are normal. The small bowel contains bile stained mucus. The large bowel contains meconium. No abnormalities are noted in the bowel wall or mucosa.

GENITO-URINARY TRACT:

Each kidney weighs 20 grams. The capsules strip with ease revealing a lobulated red-tan surface. On section the cortico-medullary lines are sharp. The cortices are tan and the medulla is purple. The calyces, ureters, and pelves are not remarkable.

The urinary bladder is not remarkable.

The uterus and fallopian tubes are not remarkable. Small cystic structures lie on the surface of the ovary. These measure up to 1.0 cm. in diameter. On section the lumens contain clear, straw colored fluid.

THYMUS:

The thymus weighs 10 grams but is otherwise normal.

THYROID:

The thyroid is normal in color, size, shape, and consistency.

ADRENALS:

The adrenals are not remarkable.

CASE NO. 14

US-48

AGE: 83

DATE OF DEATH: 4-26-56

DATE OF AUTOPSY: 10:00 a.m. 4-27-56.

PROSECTOR: Richard A. Call, M. D.

ASSISTANTS: Robert Davis and John Koense

CHIEF DIAGNOSIS:

1. Asphyxiation, secondary to aspiration of gastric contents.
2. Diabetes mellitus, (clinical diagnosis).
3. Arterio and arteriolosclerosis, marked.
4. Focal degeneration and necrosis of the brain with organization, secondary to No. 3 above.
5. Fatty metamorphosis of the liver, marked.
6. Hydrops of the gall bladder.
7. Chronic cholecystitis.
8. Cholelethiasis.
9. Adenomyosis.

COMMENT:

The immediate cause of death in this case was undoubtedly due to a combination of factors. The most import was the asphyxiation, secondary to aspiration of the gastric contents which may have followed coma or a convulsion.

It is impossible, histologically, to determine the severity of the diabetes mellitus. How well the diabetes was controlled clinically cannot be determined histologically.

The arterio and arteriolosclerosis was moderate to marked. The multiple foci of softening and degeneration scattered throughout the brain are secondary to this process.

The changes in the liver may represent an early cirrhosis.

GENERAL DESCRIPTION:

This is the body of a markedly obese, elderly, white female, who appears the stated age. It measures 58" in length and weighs an estimated 200 lbs. Innumerable needle puncture wounds are scattered about the anti-cubital fossa and upper arms. Ecchymoses are scattered about the right upper arm. There is marked livor mortis, most significant over the dependent portions. Petechial hemorrhages are scattered about the ankles and feet. There is slight masceration of the skin over the hips and sacrum. The scalp is covered with long, grey brown hair. The pupils are round and equal measuring 3 mm. in diameter. The irides are grey-green. There is bilateral arcus senilis. The ear canals and nares are not remarkable. There is edentia totalis. Bile stained liquid lies in the mouth and nasopharynx. Bony abnormalities and exostosis are not identified.

PRIMARY INCISION:

The usual Y-shaped incision reveals abundant, yellow lobulated fat. The muscularis is well developed, dark red and moist. The breasts are moderately pendulous, but are otherwise not remarkable.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. The serosa is smooth and shiny. The organs lie in normal relationship. A few adhesions lie between the fundus of the gall bladder and the transverse colon. The right leaf of the diaphragm lies at the level of the 4th intercostal space and the left lies at the level of the 5th rib. The liver margin extends 3 cm. beneath the xyphoid process in the midline and lies at the costal margin in the right midclavicular line. The margin is moderately rounded. The capsule is yellow tan. The kidneys are not palpated due to excessive fat. The ureters are not dilated. The appendix is present and is not remarkable. The ovaries show vilateral senile atrophy. The uterus and fallopian tubes are grossly normal. There is no excess of free fluid noticed in either pleural space.

A few adhesions are present at the apical portions of both upper lobes. The pericardial space contains a few cc. of straw colored fluid. The base of the heart including the coronary arteries is covered by a thick layer of yellow fat.

HEART:

The heart weighs 350 gm. Multiple sections reveal marked congestion. The left ventricle myocardium measures 12 mm. in thickness and the right ventricular myocardium averages 4 mm. in thickness. The chambers are of normal size. The interventricular and interauricular septa are intact. The auricular appendages are not remarkable. The valves are grossly normal with the exception of slight thickening of the cusps of the aortic valve. The circumferences of the valves at the rings are as follows: pulmonic 7.5 cm., tricuspid 12 cm., mitral 9 cm., and aortic 7 cm. Sections through the coronary arteries reveal slight focal sclerosis. No areas of significant narrowing are identified.

The aorta shows only slight sclerosis, becoming more marked as it is descended. The thoracic aorta is essentially normal. The great vessels show no significant changes.

LUNGS:

The right lung weighs 340 gm. There is decreased crepitus throughout the lower lobe. The pleura is salmon pink mottled with athracotic pigment. On section the surfaces are pale red and in some areas the bronchioles exude thick green mucoid liquid resembling stomach contents. Foci of consolidation are not identified. The lower lobe parenchyma is moderately dry and dark red to purple. (atelectasis).

The left lung weighs 220 gm. The pleura is salmon pink to red mottled with anthracotic pigment. Crepitus is normal throughout both lobes. On section the parenchyma is red to dark red mottled with anthracotic pigment. Green bile stained liquid exudes freely from some bronchioles.

The trachea and bronchi are filled with thick bile stained mucus and liquid resembling stomach contents. The lumens are effectively occluded.

GASTRO-INTESTINAL TRACT:

The esophagus contains bile stained liquid. The stomach contains about 50 cc. of bile stained liquid and mucus. The mucosal and rugal patterns are normal. The small bowel contains abundant bile stained chyme. The large bowel contains soft brown fecal matter. Abnormalities are not present in the bowel wall.

LIVER:

The liver weighs 1150 gm. The capsule is yellow orange to tan. On section the parenchyma bulges beyond the capsule. The parenchyma is tougher than normal and shows yellow orange discoloration. The lobular pattern is faintly visible in some areas. The biliary radicles and portal vein are normal.

The gall bladder contains an estimated 100 cc. of clear mucoid liquid and innumerable mixed type calculi. These vary in size from 1 to 2 cm. in diameter. One calculus is impacted in the neck and cystic duct. The mucosa is distinctly granular and shows superficial erosion. The wall measures up to 1 mm. in thickness. The common duct is patent.

PANCREAS:

The pancreas weighs 100 gm. and shows moderate to marked fatty infiltration most significant in the body and the tail.

GENITO-URINARY TRACT:

Each kidney weighs 100 gm. The capsules strip with ease revealing a slightly granular, tan surface. On section the corticiomedullary lines are sharp. The cortices measure 8 to 10 mm. in thickness and are tan. The medulla is purple. The peri-pelvic fat is increased in amount. The calices, pelves, and ureters are not remarkable.

The urinary bladder is not remarkable.

The fallopian tubes and uterus show no significant abnormalities. The ovaries show senile atrophy.

SPLEEN:

The spleen weighs 100 gm. An occasional fibrous adhesion is attached to the surface. The capsule is grey to purple. On section the parenchyma is soft and pultaceous. The Malpighian corpuscles are not identified grossly.

LYMPH NODES:

Not remarkable.

BONE MARROW:

Bone marrow samples taken from the iliac crest, vertebra, sternum, and rib are not remarkable.

THYROID:

Normal in size, shape, color, and consistency.

ADRENALS:

Normal in size, shape, color, and consistency.

PITUITARY:

Normal in size, shape, color, and consistency.

HEAD:

No abnormalities are noted in the scalp or calvarium.

No abnormalities are noted in the meninges, or cerebro-spinal fluid. The paranasal sinuses, mastoid air cells, and middle ears are normal.

BRAIN:

The brain weighs 1200 gm. The cerebral hemispheres are symmetrical. The pia arachnoid shows moderate congestion. The cortex is not remarkable. The arteries at the base of the brain are normal. The cerebellum and brain stem are not remarkable.

BRAIN DISSECTION FOLLOWING FIXATION - By Dr. Peter Lindstrom:

This is a somewhat small adult human brain hardened in formalin. The basal arteries are surprisingly well preserved, with only a minimal amount of atheromatous degeneration. There is a noticeable congestion of the surface vessels, but no thickening of the lepto-meninges. On cortical-sectioning, no gross pathology is found, except minimal cystic degeneration of the basal ganglia and a small cerebral softening on the lateral wall of the left ventricular horn in the parietal lobe. This lateral softening measures about 3 mm. in diameter. Further sectionings through the brain stem and cerebellum shows no gross abnormalities.

IMPRESSION:

1. Mild congestion.
2. Slight cystic degeneration of basal ganglia.
3. Small cerebral softening at the lateral wall of the lateral ventricle in the left parietal region probably secondary to arteriosclerosis.

MICROSCOPIC DESCRIPTION:

Heart:

Sections reveal slight fatty infiltration of the right ventricular myocardium. The arteries and arterioles show slight intimal thickening. Many of the myocardial fibers contain intra -cytoplasmic brown granular pigment.

Lungs:

Sections reveal slight anthracosis, congestion, and emphysema. There is slight edema in some areas. There is uneven thickening of the pleura with focal thickening of the interalveolar septa. The bronchioles are not remarkable. Some arteries and arterioles show slight to moderate intimal thickening.

Liver:

Sections reveal marked (3+) fatty metamorphosis and parenchymatous degeneration. In some areas, regenerating foci of liver parenchyma are identified. The arterioles show moderate intimal thickening with significant lumenal narrowing. There is slight accentuation of the peri-portal fibrous tissue with slight lymphocytic infiltration.

Pancreas:

Sections reveal moderate fatty infiltration. Some arteries show moderate intimal thickening.

Kidneys:

Sections reveal slight to marked intimal thickening of arteries and arterioles. Some show total lumenal obliteration. Glomeruli, showing fibrosis with hyalinization are moderately abundant. There is slight focal lymphocytic infiltration of the peripelvic fibro-fatty tissue.

Uterus:

Sections reveal innumerable thick walled vessels scattered about the myometrium. Nests of stroma and glands are scattered about. The glands are lined by pseudo-stratified columnar type epithelium. The endometrium varies in thickness and is composed of loose stroma and a few glands showing marked cystic distention. There is marked congestion and focal interstitial hemorrhage. Sections through a follopian tube reveals no abnormalities.

Spleen:

Sections reveal marked intimal thickening and hyalinization of arteries and arterioles with almost total lumenal obliteration. There is moderate to marked congestion with some depletion of the lymphoid element.

Thyroid:

Not remarkable except for some intimal thickening of arteries and arterioles.

Adrenals:

Sections reveal focal depletion of the cortical lipid. Peri-capsular arterioles are essentially normal except for slight intimal thickening.

Pituitary:

Not remarkable.

Brain:

Sections reveal slight to moderate intimal thickening with hyalinization of arteries and arterioles. There is perivascular and perineuronal edema. In some sections the brain parenchyma shows focal gliosis with marked macrophagic and gitter cell infiltration. There is focal cyst formation. Some sections show rather extensive involvement. The ependyma is intact.

Calvarium:

The periosteum is absent. The cortex and trabeculae are composed of mature cancellous bone. In some areas the cortex is thickened and shows a slight moasic pattern. The marrow spaces are filled with fat.

Sternum:

The periosteum is intact. The attached skeletal muscle is not remarkable. The cortex is slightly uneven and shows poor decalcification. The cortex and trabeculae are composed of mature cancellous bone. The marrow is not remarkable except for focal granular cell hyperplasia.

Vertebra:

The periosteum is not remarkable. Thick-walled vessels are abundant. The cortex and trabeculae are composed of mature cancellous bone. In some areas there is a faint moasic pattern. The bone marrow shows distinct granular cell hyperplasia.

Rib:

Sections reveal intact periosteum. The cortex shows uneven decalcification, most marked subjacent to the periosteum. The cortical bone and trabeculae are composed of mature bone. The marrow shows focal granular cell hyperplasia.

Iliac Crest:

The periosteum is partially intact and is not remarkable. The cortex and trabeculae and bone marrow are similar to that previously described.

CASE NO. 15

A-234-56

AGE: 43

DATE OF DEATH: April 13, 1956

DATE OF AUTOPSY: 9:00 a.m., 4-14-56

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Robert V. Davis

CHIEF DIAGNOSIS:

1. Pheochromocytoma of the left adrenal gland.
2. Chronic passive congestion of the lungs, moderate.
3. Myocardial degeneration, slight.

COMMENT:

The immediate cause of death in this case was due to heart failure secondary to the tumor of the left adrenal gland. Characteristically, these tumors excrete large quantities of epinephrin which results in temporary hypertension. Thus, the overstimulation of the heart ultimately results in failure. Occasionally, death may occur from rupture of a cerebral vessel.

Positive for epinephrin.

CLINICAL SUMMARY:

According to history the patient had been in excellent health for many years. She had had, however, periodic episodes of dizziness, nausea and vomitin While enroute to Las Vegas for a vacation the patient became ill and returned home. She developed dizziness, nausea, vomiting, epigastric and thoracic type pain. She was examined by a physician who found a low blood pressure. Later her blood pressure was markedly elevated. Following this, a second episode of epigastric pain developed, shock intervened and the patient expired on the way to the hospital.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white female which appears the stated age. It measures 64 inches in length and weighs an estimated 120 pounds. The scalp is covered with short curly hair which has been dyed a deep red. Examination of the eyes and nasopharynx is precluded by embalming. An embalmer's incision lies at the base of the neck on the right side. The nares are not remarkable. The ear canals are dry. There are no palpable lymph nodes. The breasts are small and no palpable masses are present. Two well healed linear scars lie in the lower abdomen. One in the lower midline and the second is a McBurney's scar in the right lower quadrant. Two bruises, each measuring about 1.0 cm. in diameter lie in the inner aspect of the upper thighs. The external genitalia are not remarkable. The hair distribution is that of a normal adult female.

CASE NO. 15

PRIMARY INCISION:

The usual Y shaped incision reveals a 1.0 cm. layer of fat over the lower midline. Lying between the skin and the fascia, in the lower abdominal wall is a fibrous cord resembling round ligament of the uterus. The musculature is well developed, dark red and moist.

SEROUS CAVITIES:

The omentum is adherent to the lower abdominal organs and is attached to the previously described incisional scars. The uterus is adherent to the anterior abdominal wall by anterior suspension of the round ligaments. The right tube and ovary are adherent to the cecum. The left tube and ovary are not remarkable. The appendix is absent, otherwise, the organs lie in normal relationship. The liver is dark red-tan. The margins do not extend beneath the costal cartilages. The right leaf of the diaphragm lies at the level of the 4th rib and the left leaf lies at the level of the 5th intercostal space. The kidneys are normal to palpation, however, a hard tumor mass lies adjacent to the upper pole of the left kidney. The ureters are not dilated, and the spleen is normal to palpation.

The pleural spaces contain a few cc. of clear straw colored fluid. The heart is normal in contour and position.

HEART:

The heart weighs 410 grams. Sections through the myocardium reveal patchy congetion. The right ventricular myocardium averages 4.0 mm. in thickness and the left averages 15.0 mm. in thickness. The interventricular and interauricular septa are intact. The auricular appendages are empty and are normal. The chambers are of normal size. The valves are normal. The circumferences of the valves at the rings are as follows: pulmonic, 7.0 cm., tricuspid, 11.0 cm., mitral, 9.5 cm., and the aortic, 6.0 cm. Sections through the coronary arteries reveal slight sclerosis, however, there are no areas of significant narrowing or occlusion. The aorta shows slight atherosclerosis becoming more marked as it is descended.

LUNGS:

The right lung weighs 900 grams. The pleura is discolored dark red to purple. There are slight anthracosis and slight decreased crepitus throughout all lobes. On section the surfaces are dark red to purple. Copious quantities of frothy and hemorrhagic liquid exude freely from the parenchyma. Consolidation is not identified grossly. The bronchi and bronchioles contain frothy liquid. The pulmonary vessels are normal.

The left lung weighs 750 grams and is similar to the right.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable.

The stomach contains about 150 cc. of undigested food and mucus. There is hyperemia of the mucosa. The rugal pattern is present. The small bowel contain bile stained chyme. The large bowel contains soft, brown fecal matter. No abnormalities are noted in the wall or mucosa.

CASE NO. 15

LIVER:

The liver weighs 1550 grams. The capsule is dark red to tan, smooth and shiny. On section the parenchyma bulges slightly beyond the capsule. There is slight accentuation of the lobular pattern. The surfaces are dark red to tan mottled with foci of grey to brown (embalming). The biliary radicles and portal vein are not remarkable.

The gall bladder contains a few cc. of bile. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 150 grams. It is normal in shape, color and consistency On section no abnormalities are noted.

GENITO-URINARY TRACT:

The right kidney weighs 150 grams. The capsule strips with ease revealing a smooth, shiny tan surface. On section the cortex is pale tan and the medulla is purple. The cortex averages 9.0 to 10.0 mm. in thickness. The cortico-medullary line is sharp. The calices, pelvis and ureter are normal.

The left kidney weighs 150 grams and is similar to the right. A tumor mass measuring 7.5 x 5.0 x 4.0 cm. is loosely attached to the upper pole of the left kidney. It is easily dissected from the surface and shows no connection with the renal capsule. The tumor replaces most of the left adrenal gland. It weighs 70 grams. The external surfaces are grey. The sectional surfaces are pale red to yellow-grey mottled with foci of dark red, purple, orange, and grey. Cysts measuring up to 1.5 cm. in diameter are abundant. A large focus of orange-brown necrosis measures 1.5 x 1.2 x 1.2 cm. A thin zone of cortex partially surrounds the tumor. The recognizable adrenal gland measures 4.0 x 3.0 x 1.0 cm. in its greatest diameter.

The right adrenal weighs 5.5 grams and on sections shows no abnormalities. The cortex averages from 1.0 to 2.0 mm. in thickness and is orange-brown. The medulla is grey.

THYROID:

Not remarkable.

PITUITARY:

Not remarkable.

UTERUS:

The uterus is not remarkable. Sections through the myometrium are normal. The endometrium measures 5.0 mm. in thickness and is soft and grey. The cervix contains a few mucous cysts but is otherwise normal.

The vagina is not remarkable.

Both fallopian tubes are normal.

The larger ovary measures 3.5 cm. in diameter. On section the ovaries are not remarkable.

SPLEEN:

The spleen weighs 120 grams. The capsule is dark red to purple, smooth and shiny. On section the parenchyma is moderately firm and is pale purple. The Malpighian corpuscles are easily visible.

LYMPH NODES:

Not remarkable except for anthracosis of the tracheo-bronchial chain.

BONE MARROW:

Marrow samples taken from the sternum, rib, calvarium, iliac crest and vertebra show no gross abnormalities.

HEAD:

No abnormalities are noted in the scalp or calvarium. The meninges and cerebro-spinal fluid are normal. The paranasal sinuses, mastoid air cells and middle ears are normal.

BRAIN:

The brain weighs 1210 grams. The cerebral hemispheres are symmetrical. The cortex is normal. The pia arachnoid is not remarkable. Frontal sections made through the cerebral hemispheres about 1.0 cm. apart reveal marked congestion. A few foci of pin point hemorrhage are scattered about. These are most marked in the pons. There is uneven patchy congestion of the basal ganglia.

Sections through the cerebellum and brain stem reveal only congestion.

MICROSCOPIC DESCRIPTION:

Heart:

Brown granular pigment is abundant in the myocardial fibers. In some areas there is an apparent increase in nuclei. Some show distortion and others are markedly enlarged. A few mononuclear cells are scattered about. Occasional neutrophils are also identified. There is slight perivascular fibrosis. Some of the arterioles and arteries show slight to moderate intimal thickening. The right ventricular myocardium shows moderate fatty infiltration. In some myocardial fibers there is beginning vacuolization and beginning loss of the cross striations.

Lungs:

The most significant alteration is the moderate infiltration of the alveoli by brown granular pigmented macrophages (heart failure cells). There are slight edema, focal emphysema and anthracosis. In some areas the intra-alveolar septa show fibrous thickening. Some arteries and arterioles show slight to moderate intimal thickening. There is slight lymphocytic infiltration of the bronchiolar walls.

Aorta:

Sections reveal slight antherosclerosis.

Liver:

Sections reveal slight passive congestion, and a few lymphocytes are sprinkled about the peri-portal fibrous tissue.

Pancreas:

Not remarkable.

Bowel:

Not remarkable.

Gallbladder:

Sections reveal slight lymphocytic infiltration throughout all layers.

Kidneys:

Sections show slight focal lymphocytic infiltration of the cortex. Otherwise, no significant abnormalities are noted.

Uterus:

Not remarkable. The endometrium is in the early secretory phase.

Thyroid:

Not remarkable.

Adrenals (left):

Much of the gland is destroyed by a tumor mass varying widely in appearance. A thin zone of cortical cells overlays the tumor in most sections. Extensive degeneration, necrosis, and focal interstitial hemorrhage is present. Only ghosts of cells remain in some areas. Brown granular pigmented macrophages are abundant. In other areas fibrous tissue replaces the tumor. Here, there is slight lymphocytic infiltration. Elsewhere, the tumor cells vary from large pleomorphic cells to small hyperchromatic ones. The former shows indistinct cell boundaries. The cytoplasm varies from eosinophilic to basophilic and is abundant. The nuclei are round or oval and the nuclei are hyperchromatic and vesiculated. In many areas rosettes are present. Here, the stroma is composed of a delicate connective tissue. Transitions from the small hyperchromatic cells to the large plump tumor cells are not identified histologically. There is no tumor invasion of the capsule in the sections examined.

Spleen:

Not remarkable except for slight intimal thickening of the arteries and arterioles.

Lymph nodes:

Negative except for anthracosis.

Accessory spleen:

Not remarkable.

Brain:

Not remarkable except for congestion and focal perivascular hemorrhage.

Calvarium:

Periosteum is absent. The cortex is dense and the trabeculae are broad. These are composed of mature cancellous bone. A small amount of cellular marrow is present.

Sternum:

The periosteum is intact. The attached skeletal muscle is not remarkable. The subjacent cortex shows irregular decalcification. The cortex and trabeculae are composed of mature cancellous bone. The marrow is not remarkable except for occasional lymphoid aggregates.

Vertebra:

The periosteum is histologically normal. The cortex and trabeculae are composed of mature bone. There is some uneven decalcification. The marrow is not remarkable, except for a few lymphoid aggregates.

Rib:

The periosteum and attached skeletal muscle are not remarkable. The cortex is uneven. The trabeculae are delicate. The cortex and trabeculae are composed of mature cancellous bone showing uneven decalcification. Lymphoid aggregates are identified within the marrow.

Iliac Crest:

The periosteum and attached skeletal muscle are not remarkable. The cortex and trabeculae are composed of mature cancellous bone, however, there is a uneven decalcification. The marrow is not remarkable.

CASE NO. 16

AV-242

AGE: 42

DATE OF DEATH: 6:21 p.m., 5-20-56

DATE OF AUTOPSY: 10:30 a.m., 5-21-56

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Robert V. Davis

CHIEF DIAGNOSIS:

1. Gunshot wound of the head involving scalp, calvarium and brain.
2. Subdural hematoma secondary to No. 1 above.
3. Extensive hemorrhage into the paranasal sinuses, mastoid air cells and middle ears secondary to No. 1 above.
4. Acute bronchopneumonia, early, secondary to No. 1 above.

COMMENT:

The immediate cause of death in this case is the direct result of the gunshot wound of the head. The other complications are entirely secondary to this wound.

The angle of fire, plus the extensive undermining of the skin and soft tissues adjacent to the wound of entrance, indicates that the gun was fired close to or in contact with the skin. This undermining is secondary to the blast effect or the expansion of hot gases into the subcutaneous tissues. These findings are compatible with a self inflicted gunshot wound.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white man which appears the stated age of 42. It measures 68 inches in length and weighs an estimated 150 pounds. The scalp has recently been shaved. A recent surgical wound lies 2.0 inche above the right ear. The wound measures 1.5 x 0.5 inches. The wound edges are sharp and are clean. The incision runs parallel to the eyebrows. Innumerable crusted tan-brown lesions are scattered over the scalp. These vary in size from 1/8 to 1/2 inches. A few scratches measuring up to one inch in length are also present. A soft swelling measuring 3.0 x 2.0 inches lies over the left parietal area. Here lies an irregular well healed scar measuring about 1/2 inch in its greatest diameter. An irregular bruise lies over the bridge of the nose extending into the corner of each eye. It measures 1.5 x 1.0 inches in its greatest extent. Each ear canal is filled with blood. An irregular bruise measuring about 2/3 inch in diameter lies behind the right ear. Needle puncture wounds are scattered about the arms and wrists. Irregular bruises measuring up to 1.0 inch in diameter are present about the left upper arm. There is some post-mortem lividity of the back and flanks. Here, petechial hemorrhages are identified. A single needle puncture wound lies in the intervertebral space in the lumbar area (spinal tap). The hair distribution is that of a normal adult male. The nails and feet are extremely dirty. The testes show bilateral atrophy.

HEAD:

The usual scalp incision is made. The scalp is reflected revealing extensive hemorrhage and undermining of the wound margins previously described. Here, there is extensive hemorrhage into soft tissues. The previously described swelling of the left parietal area is due to a subdural hematoma. At the site of the previously described surgical wound is a defect in the calvarium measuring 3/8 x 1/4 inches. The margins of this defect are moderately sharp. Bone fragments project from the inner surface of the defect. Lying at the base of the previously described hemorrhage is a stellate fracture. It measures 5/8 x 1/2 inches. Fragments of bone are easily removed and project outward.

On removing the calvarium a bullet (projectile) lies between the dura and the calvarium. Its exact location is not known due to its displacement in removal of the calvarium. "The previously described fracture is the result of the projectile striking the calvarium on the undersurface". There are two holes in the dura corresponding to the defects described in the calvarium. The entrance wound in the calvarium lies 11.5 cm. from the exit wound. The brain shows a sinus tract (projectile tract) extending between the two defects previously described in the dura and calvarium. The entrance wound measures 1.5 x 1.0 inches. Here, innumerable pinpoint foci of red and black are scattered about the macerated brain. The sinus tract freely admits a 1.0 cm. probe. There is extensive subdural hemorrhage, most marked over the right cerebral hemisphere, and less marked over the left cerebral hemisphere. There is extensive edema of the cortex with obliteration of the sulci and widening of the gyri. The arteries at the base are not remarkable. There is a cerebral pressure cone surrounding the medulla and spinal cord. It measures about 1 x 1/4 inches.

The paranasal sinuses and middle ears contain liquid and clotted blood. Fractures in the base are not identified grossly.

PITUITARY:

The pituitary is normal in size, shape, color and consistency.

PROJECTILE:

The projectile is copper colored and slightly distorted at the apex. The fragment is labeled at the base with the initials "R.C." and given to Deputy Sheriffs Merrill Smith and Newell Knight. The projectile is wrapped in cotton and sealed in a plain white envelope.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. The organs lie in normal relationship. The appendix is not remarkable. The right leaf of the diaphragm lies at the level of the 4th rib and the left leaf lies at the level of the 5th rib. The liver is tan and the margins are acute. They extend 6.0 cm. beneath the xiphoid process in the midline and 3.0 cm. beneath the costal cartilage in the right midclavicular line. The kidneys and spleen are normal to palpation. The ureters are not dilated.

The pleural space contains no excess of free fluid. Adhesions are not present.

The pericardial space contains a few cc. of straw colored fluid. The heart is normal in position and contour.

HEART:

The heart weighs 310 grams. Multiple sections reveal no abnormalities. The left ventricular myocardium averages 12.0 mm. in thickness and the right ventricular is extensive hemorrhage into soft tissues. The previously described swelling of the left parietal area is due to a subdural hematoma. At the site of the previously described surgical wound is a defect in the calvarium measuring 3/8 x 1/4 inches. The margins of this defect are moderately sharp. Bone fragments project from the inner surface of the defect. Lying at the base of the previously described hemorrhage is a stellate fracture. It measures 5/8 x 1/2 inches. Fragments of bone are easily removed and project outward.

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The pleural space contains no excess of free fluid. Adhesions are not present.

The pericardial space contains a few cc. of straw colored fluid. The heart is normal in position and contour.

HEART:

The heart weighs 310 grams. Multiple sections reveal no abnormalities. The left ventricular myocardium averages 12.0 mm. in thickness and the right ventricular myocardium measures from 3.0 to 4.0 mm. The interventricular and interauricular septa are intact. The auricular appendages are empty and are essentially normal. The valves are grossly normal. The circumference of the valves at the rings are as follows: Pulmonic 6.0, tricuspid 11.0, mitral 8.0, and aortic 6.0 cm.

The coronary arteries are not remarkable.

The aorta and great vessels show slight sclerosis.

LUNGS:

The right lung weighs 900 grams. The pleura is red to dark purple mottled with anthracotic pigment. There is slight decreased crepitus throughout the lower and middle lobes. On section the surfaces are dark red to purple. Copious quantities af hemorrhagic liquid exude freely from the surfaces. There is slight anthracosis. Some of the bronchioles contain thick tenacious grey mucoid liquid. Frothy liquid partially fills the bronchi. The vessels are not remarkable.

The left lung weighs 930 grams and is similar to the right.

LIVER:

The liver weighs 1600 grams. The capsule is smooth, shiny and red-tan. On section the lobular pattern is not remarkable. Hemorrhagic liquid exudes freely from the surfaces. The biliary radicles and portal vein are normal.

The gallbladder, common and cystic ducts are not remarkable.

PANCREAS:

The pancreas weighs 130 grams and is normal in shape, color and consistency.

GASTRO-INTESTINAL TRACT:

The esophagus is bile-stained, but is otherwise not remarkable.

The stomach contains about 500 cc. of "coffee ground" liquid. The mucosa shows autolysis but is otherwise not remarkable. The duodenum contains bile-stained chyme. The large bowel contains fecal matter. No abnormalities are noted in the bowel wall.

GENITO-URINARY TRACT:

Each kidney weighs 150 grams. The capsules strip with ease revealing smooth, shiny pale tan surfaces. On section the cortico-medullary lines are sharp. The cortices are tan and measure up to 8.0 mm. in thickness. The medulla is purple. The calices, pelves and ureters are not remarkable.

The urinary bladder is not remarkable.

The prostate measures 3.5 x 3.5 x 3.0 cm. in its greatest diameter. Multiple sections reveal no abnormalities.

SPLEEN:

The spleen weighs 150 grams. The capsule is dark red to purple. On section the surfaces are red mottled with grey. The Malpighian corpuscles are visible.

LYMPH NODES:

Not remarkable.

BONE MARROW:

The sternal, rib, iliac crest and vertebral marrow is dark red and abundant.

THYROID:

Not remarkable.

ADRENALS:

Not remarkable.

BRAIN:

The weight of the fixed brain is 1530 grams. The cerebral hemispheres are symmetrical. There is moderate to marked flattening of the gyri with narrowing of the sulci (edema). There is extensive subarachnoid hemorrhage extending over the right parietal and temporal lobes and extending past the midline over the left parietal lobe. On the right side the hemorrhage extends to the base of the brain. At some points it measures 1.0 cm. in thickness and extends into the sulci in most areas. There is a defect of the brain corresponding with the wound of entrance and wound of exit. The wound of entrance measures 4.0 cm.in diameter. Here the brain shows extensive maceration with softening and petechial hemorrhages. The sinus tract freely admits a 5.0 mm. probe. On section no abnormalities are noted for extensive edema, petechial hemorrhages and hemorrhage into the sinus tract. Lying just inferior and slightly posterior to the wound of entrance within the grey and white matter is an extensive hemorrhage with cavitation. This cavity measures 4.0 cm. in diameter and is filled with clotted blood. It is not directly continuous with the bullet tract nor the wound of entrance, but communicates with the surface of the brain through the sulci. There is extensive congestion and petechial hemorrhages scattered about the basal ganglia, brain stem and cerebellum.

The arteries at the base of the brain show only slight focal atherosclerosis. There are no areas of significant narrowing or occlusion.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal no significant abnormalities.

Lungs:

Sections reveal extensive congestion and focal intra-alveolar hemorrhage. Brown granular pigmented macrophages lie in most alveoli. There is early bronchopneumonia.

Liver:

Sections reveal slight fatty meatmorphosis. Many of the liver cord cells contain brown granular pigment. There is slight lymphocytic infiltration of the periportal fibrous tissue.

Pancreas:

Not remarkable except for post-mortem autolysis.

Kidneys:

Not remarkable.

Prostate:

Not remarkable.

Thyroid:

Sections reveal slight focal lymphocytic infiltration. An occasional aggregate is identified. The follicles are well filled and lined with cuboidal epitheli

Adrenals:

Not remarkable.

Pituitary:

Not remarkable.

Spleen:

Not remarkable.

Temporal muscles:

Sections reveal extensive interstitial hemorrhage and necrosis with beginning neutrophilic infiltration. Fragments of basophilic and black substance (foreign body) are identified.

Brain:

Sections reveal extensive subarachnoid hemorrhage extending into the sulci. There is marked congestion and marked focal perivascular hemorrhage. In some areas brain parenchyma shows degeneration, necrosis and interstitial hemorrhage. There is beginning neutrophilic infiltration of the clot.

Sternum:

The periosteum and attached skeletal muscle are not remarkable. The cortex and trabeculae are composed of mature cancellous bone showing uneven decalcificatio The bone marrow is not remarkable.

Vertebra:

The periosteum is not remarkable except for a few thick-walled vessels. The cortex and trabeculae are composed of mature cancellous bone. The marrow is not remarkable.

Rib:

The periosteum and attached skeletal muscle are histologically normal. The cortex and trabeculae are composed of mature cancellous bone. The marrow is not remarkable.

__Iliac Crest__:

The periosteum and skeletal muscle are not remarkable. The cortex and broad trabeculae are composed of mature cancellous bone. The marrow is not remarkable.

CASE NO. 17

US-49

AGE: 60

DATE OF DEATH: May 25, 1956

DATE OF AUTOPSY: 10:30 a.m. May 27, 1956

PROSECTOR: Richard A. Call, M. D. Assistant, Robert V. Davis

CHIEF DIAGNOSIS:

1. Extensive hemorrhage and gangrene of the small bowel, secondary to volvulus.
2. Arterio and arteriolosclerosis.
3. Asphyxiation, secondary to aspiration of gastric contents.
4. Passive congestion of the lungs.

COMMENT:

The immediate cause of death in this case was the result of a volvulous of the small bowel with resultant hemorrhage and gangrene. The asphyxiation was undoubtedly terminal and secondary to aspiration of vomitus.

GENERAL DESCRIPTION:

This is the embalmed body of a well developed, well nourished white woman which appears the stated age. It measures 64" in length and weighs an estimated 120 pounds. The scalp is covered by long, curly grey hair, showing uneven red-purple discoloration. The ear canals are dry. Brown liquid exudes from the nares and mouth. Embalming precludes examination of eyes and nasopharynx. The breasts are not remarkable. Lymph nodes are not palpable. Innumerable excoriations extend across the right lower quadrant into the flank and reaching the vertebra posteriorly (Herpes Zoster). Needle puncture wounds are present in the anti-cubital fossa. There is red purple discoloration of the right leg. There are bilateral bunions and bilateral pes cavus. The external genitalia are essentially normal. The hair distribution is that of a normal adult female.

PRIMARY INCISION:

The usual Y shaped incision reveals a 4 cm. layer of yellow lobulated fat. The musculature is dark red, well developed and moist. Sections through the breasts reveal no abnormalities.

SEROUS CAVITIES:

The peritoneal space contains about 500 cc. of liquid blood. A 24 inch loop of small bowel shows marked red purple discoloration and marked distention. This distention is due to obstruction secondary to a volvulus. It is impossible to untwist this volvulus without rupturing the bowel. It lies about 24 inches proximal to the cecum. Here, the bowel measures up to 10 cm. in diameter. The proximal bowel shows moderate distention and the distal small bowel is empty and collapsed. The colon contains small fragments of hard, brown fecal matter. The appendix is not remarkable. No additional abnormalities are noted in the bowel wall. The liver does not extend beneath the costal margin. The right leaf of the diaphragm lies at the level of the 4th rib and the left leaf lies at the level of the 4th intercostal space. The spleen is normal to palpation. The kidneys are slightly reduced in size and the ureters are not distended. The pelvic organs are normal.

The pleural spaces each contain a few cc. of hemorrhagic liquid. The right pleural space is largely obliterated by dense fibrous adhesions. The left pleural space shows no adhesions.

The pericardial space contains a few cc. of hemorrhagic liquid. The pericardium is essentially normal. The heart is normal in position and contour.

HEART:

The heart weighs 220 grams. Sections through the myocardium reveal no abnormalities. The left ventricular myocardium averages 1.5 cm. and the right ventricula myocardium averages 2 to 3 mm. The chambers are of normal size. The pulmonic, tricuspid and mitral valves are normal. The aortic valve shows fusion between the right lateral and posterior cusps. Otherwise, no abnormalities are noted. There is slight atheromatous thickening at the base of the mitral valve. The circumferences of the valves at the rings are as follows: Pulmonic 6 cm; Tricuspid 10 cm; Mitral 8 cm; and Aortic 6 cm. The auricular appendages are essentially normal. The interventricular and interauricular septa are intact. Sections throughout the coronary arteries reveal only focal thickening. No areas of significant narrowing or occlusion are noted. The aorta and great vessels show slight focal atheromatosis. The iliac artery shows similar thickening. Occlusion of the iliac and femoral vessels is not identified. The leg vessels are not opened.

LUNGS:

The right lung weighs 440 gm. Fibrous adhesions partially cover the visceral pleura. Elsewhere, the pleura is salmon pink to red, mottled with thin streaks of anthracotic pigment. On section, copious quantities of hemorrhagic and frothy liquid exude freely from the parenchyma. This is most marked in the dependent portions of the lower lobe, where the surfaces are dark red. Elsewhere, the parenchyma is soft, fluffy and salmon pink. The pulmonary arteries and veins are not remarkable. The bronchi and bronchioles contain brown liquid and mucus resembling stomach contents. The lumens are completely occluded.

The left lung weighs 350 gm. and is similar to the right.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable except for focal epitheliosis. The stomach contains a few cc. of brown to black liquid admixed with mucus. The wall is not remarkable. The small bowel contains bile stained chyme. The large bowel contains brown fecal matter. Lying within the twisted loop of small bowel (Volvulus) is an estimated 1,000 cc. of liquid blood. Here, the wall shows marked degeneration and necrosis, measuring only about 2 mm. in thickness. The normal architecture is totally destroyed. The attached mesentery shows similar congestion and hemorrhage.

GENITO-URINARY:

The right kidney weighs 90 gm. The capsule strips with marked difficulty lacerating the cortex. The surfaces are finely granular. On section, the cortico-medullary lines are somewhat obscured. The cortex is finely granular and measures 4 mm. in thickness. The medulla is not remarkable. There is an increase in the peri-pelvic fat. The ureters are not remarkable.

The left kidney weighs 70 gm. and is similar to the right.

The urinary bladder is not remarkable.

The uterus, fallopian tubes and ovaries are not remarkable.

LIVER:

The liver weighs 1150 gm. The capsule is smooth, shiny and tan brown. On section, the lobular pattern is normal except for uneven discoloration due to embalming. The biliary radicles and portal vein are normal.

The gall bladder contains an estimated 40 cc. of thick green bile. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 100 gm. and is normal in shape and color. On section there is moderate fatty infiltration.

SPLEEN:

The spleen weighs 70 gm. The capsule is purple. On section, the surfaces are dark red mottled with grey. (Malpighian corpuscles).

LYMPH NODES:

Not remarkable.

BONE MARROW:

Sections of sternal, rib, vertebral and iliac crest marrow is red and abundant.

THYROID:

Not remarkable.

ADRENALS:

Not remarkable.

PITUITARY:

Not remarkable.

HEAD:

The scalp is thickened, measuring up to 1 cm. The calvarium shows no abnormalities.

The cerebro-spinal fluid is clear and the meninges are not remarkable.

The paranasal sinuses, mastoid air cells and middle ears are normal.

BRAIN:

The brain weighs 1200 gm. The hemispheres are symmetrical. There is moderate diffuse atrophy. The sulci are widened and the gyri are narrowed. The pia arachnoid is normal. The arteries at the base of the brain show focal atheromatosis. Further description to follow fixation.

DESCRIPTION OF THE BRAIN FOLLOWING FIXATION:

The cerebral hemispheres are symmetrical. There is slight atrophy of the convolutions, most marked over the parietal and frontal lobes. The pia arachnoid is not remarkable. Multiple sections made through the cerebral hemispheres reveal no gross abnormalities.

Sections through the cerebellum and brain stem are normal.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal slight fatty infiltration of the myocardium. There is slight perivascular fibrosis. Some arteries show intimal thickening.

Lungs:

Sections reveal slight edema, congestion, emphysema, and brown granular pigmented macrophagic infiltration. There is lymphocytic infiltration of the peribronchiolar area. The bronchioles contain brown granular pigment resembling bile. Some of the substance extends into the alveoli. The bronchial epithelium is absent and in some areas shows autolysis of the bronchiole wall.

Liver:

Sections reveal slight (2+) fatty metamorphosis. The periportal fibrous tissue shows only slight lymphocytic infiltration. There is some parenchymatous degeneration.

Pancreas:

Not remarkable except for post mortem autolysis.

Bowel:

Sections reveal fragments of small bowel showing degeneration and necrosis. In some areas, only ghosts of cells remain. There is marked interstitial hemorrhage

The mesentery and associated lymph nodes show similar changes.

CASE NO. 17

Kidneys:

Sections reveal an occasional focus of lymphocytic infiltration lying within an area of atrophy and fibrosis. Hyalinized glomeruli are scanty. There is intimal thickening of arteries and arterioles.

Thyroid:

Sections reveal no abnormalities except for an occasional lymphoid aggregate.

Adrenals:

Sections reveal focal depletion of the cortico-lipid.

Pituitary:

Not remarkable.

Spleen:

Sections reveal congestion. There is some depletion of the lymphoid element. The fibrous trabeculi are prominent. The arteries and arterioles show intimal thickening.

Calvarium:

Sections reveal partially attached periosteum. The cortex and trabeculae are composed of mature cancellous bone. The marrow shows a preponderance of fat. The cellular marrow, however, is not abnormal.

Sternum:

The periosteum and attached skeletal muscle are essentially normal. A fragment of cartilage is attached to one end. No histologic abnormalities are noted. The cortex and trabeculae are composed of mature cancellous bone. The marrow shows a preponderance of fat.

Vertebra:

The periosteum is not remarkable. The intravertebral disc shows basophilic degeneration with pseudo-cyst formation. The cortex and trabeculae show uneven decalcification. They are composed of mature cancellous bone. The marrow shows a fatty preponderance.

Rib:

The periosteum and attached skeletal muscle are not remarkable. The cortex and trabeculae are composed of mature cancellous bone. The marrow is not remarkable.

Iliac Crest:

The periosteum and attached skeletal muscle are not remarkable. The cortex and trabeculae are composed of mature cancellous bone. Here the marrow shows a preponderance of fat.

CASE NO. 18

A-243-56

AGE: 45

DATE OF DEATH: 5-30-56, 8:20 a.m.

DATE OF AUTOPSY: 5-31-56, 9:00 a.m.

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Robert V. Davis.

CHIEF DIAGNOSIS:

1. Biliary cirrhosis of the liver.
2. Esophageal varices, marked, with hemorrhage.
3. Asphyxiation secondary to aspiration of gastric contents.
4. Ascites, 8500 cc.
5. Bilateral hydrothorax, 100 cc. each.

COMMENT:

The immediate cause of death in this case was undoubtedly due to a combination of factors. The most important was the biliary cirrhosis with secondary marked esophageal varices. The hemorrhage from the varices added materially to the final demise.

The asphyxiation of gastric contents was terminal.

The marked ascites of 8500 cc. undoubtedly reduced significantly the vital capacity.

The calcification of the renal tubules is of great interest but of little import in this case. This may represent metastatic calcification, however, there are no other foci of calcification.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white man appearing about 65 years of age. It measures 76 inches in length and weighs 180 pounds. The scalp is covered with red hair. The ear canals are dry. Examination of the eyes and nasopharynx is precluded by embalming. The nares contain dried blood. Irregular foci of red-purple discoloration are scattered about the base of the neck. An embalmer's incision lies at the base of the neck on the right side. Innumerable petechial hemorrhages and ecchymoses are scattered about the antecubital fossae. Excoriations are scattered about the wrists and forearms. The abdomen is protuberant. The external genitalia are not remarkable. The fifth digit of the right foot lies at right angles and overlaps the other toes. Liquid and partially digested blood exudes freely from the rectum. Needle puncture wounds are scattered about both buttocks. A well healed appendectomy scar lies in the right lower quadrant.

PRIMARY INCISION:

The usual Y shaped incision reveals a 2.0 mm. layer of yellow fat. The musculature is moderately well developed, dark red and moist. The skin shows marked atrophy.

SERCUS CAVITIES:

The peritoneal space contains 8500 cc. of tan to hemorrhagic liquid. The tan liquid lies over the hemorrhagic liquid. The organs lie in normal relationship, however, the appendix is absent. The transverse and ascending colon is densely adherent to the scar in the anterior abdominal wall. The liver does not extend beneath the costal cartilage. The right leaf of the diaphragm lies at the level of the 4th rib and the left leaf lies at the level of the 5th rib. The bowel appears dark red to purple due to intraluminal blood. The stomach is moderately distended by liquid blood and gas. The spleen and kidneys are normal to palpation. The ureters are not dilated.

Each pleural space contains a few cc. of hemorrhagic liquid(about 100 cc.). No adhesions are noted.

A few cc. of straw colored fluid lies in the pericardial space. The pericardium is normal. The heart is normal in contour and lies in normal position.

HEART:

The heart weighs 250 grams. Sections through the myocardium reveal no gross abnormalities. The interventricular and interauricular septa are intact. The auricular appendages are empty. The valves are grossly normal. The circumferences at the rings are as follows: pulmonic, 6.0 cm; tricuspid, 12.0; mitral, 9.5 cm; and aortic, 7.5 cm. The coronary arteries and aorta show no gross abnormalities except for an occasional extremely small focus of thickening. The left ventricular myocardium measures 1.5 cm. and the right ventricular myocardium averages 2.0 to 3.0 mm. in thickness.

LUNGS:

The right lung weighs 860 grams. The pleura is salmon pink over the upper and middle lobes and is dark red to purple over the lower lobes. Anthracotic pigment is moderately abundant. There is decreased crepitus throughout the lower lobe. On section copious quantities of liquid blood exude freely from the surfaces of the lower lobe. Elsewhere, the parenchyma is salmon pink mottled with anthracotic pigment.

The bronchioles contain thick black liquid. Most show almost total luminal obliteration. Consolidation is not identified grossly.

The left lung weighs 800 grams and is similar to the right.

The trachea, bronchi and bronchioles contain copious quantities of thin and thick black liquid resembling gastric contents. The lumens are effectively occluded.

GASTRO-INTESTINAL:

The esophagus shows marked epitheliosis and distended veins. The latter are most marked in the distal one-third where they bulge above the adjacent tissue. Innumerable foci of ulceration are scattered about the distal one-third. Ruptured vessels are not identified grossly.

The stomach contains about 400 cc. of "coffee ground" substance. The mucosal and rugal patterns are intact. The small bowel contains liquid blood. The large bowel contains liquid and tarry substance. No abnormalities are noted in the wall.

SERCUS CAVITIES:

The peritoneal space contains 8500 cc. of tan to hemorrhagic liquid. The tan liquid lies over the hemorrhagic liquid. The organs lie in normal relationship, however, the appendix is absent. The transverse and ascending colon is densely adherent to the scar in the anterior abdominal wall. The liver does not extend beneath the costal cartilage. The right leaf of the diaphragm lies at the level of the 4th rib and the left leaf lies at the level of the 5th rib. The bowel appears dark red to purple due to intraluminal blood. The stomach is moderately distended by liquid blood and gas. The spleen and kidneys are normal to palpation. The ureters are not dilated.

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HEART:

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The right lung weighs 860 grams. The pleura is salmon pink over the upper and middle lobes and is dark red to purple over the lower lobes. Anthracotic pigment is moderately abundant. There is decreased crepitus throughout the lower lobe. On section copious quantities of liquid blood exude freely from the surfaces of the lower lobe. Elsewhere, the parenchyma is salmon pink mottled with anthracotic pigment.

The bronchioles contain thick black liquid. Most show almost total luminal obliteration. Consolidation is not identified grossly.

The left lung weighs 800 grams and is similar to the right.

The trachea, bronchi and bronchioles contain copious quantities of thin and thick black liquid resembling gastric contents. The lumens are effectively occluded.

GASTRO-INTESTINAL:

The esophagus shows marked epitheliosis and distended veins. The latter are most marked in the distal one-third where they bulge above the adjacent tissue. Innumerable foci of ulceration are scattered about the distal one-third. Ruptured vessels are not identified grossly.

The stomach contains about 400 cc. of "coffee ground" substance. The mucosal and rugal patterns are intact. The small bowel contains liquid blood. The large bowel contains liquid and tarry substance. No abnormalities are noted in the wall.

LIVER:

The liver weighs 1700 grams. The capsule is finely granular and yellow-tan. On section the parenchyma bulges slightly beyond the capsule and cuts with marked increased resistance. The parenchyma shows some accentuation of the lobular pattern. Nodules varying in size from pin point to about 2.0 mm. are abundant. The biliary radicles and portal vein are not remarkable.

The gallbladder contains green bile. The mucosa is not remarkable. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 125 grams. It is normal in shape, color and consistency. On section the surfaces are granular. No gross abnormalities are noted.

GENITO-URINARY:

The right kidney weighs 190 grams. The capsule strips with ease revealing a smooth, shiny pale tan surface. On section the cortico-medullary lines are sharp. The cortex measures 9.0 mm. in thickness and is pale tan. The medulla is purple. The peri-pelvic fat is not remarkable. The pelvis, ureter and calices are normal.

The left kidney weighs 190 grams. The capsule strips with slight to moderate difficulty revealing a finely granular surface, bearing innumerable inclusion cysts. These vary in size from 1.0 to 15.0 mm. The lumens contain dark liquid. The inner lining is smooth and shiny. On section the cortico-medullary line is sharp. The cortex averages 8.0 to 9.0 mm. in thickness and is tan, and finely granular. The medulla is purple. The peri-pelvic fat is not remarkable. The calices, pelvis and ureter are normal.

The urinary bladder is not remarkable.

The prostate measures 4.0 x 3.5 x 3.5 cm. The sectional surfaces are grey to pale red. No gross abnormalities are noted.

The seminal vesicles contain tan to brown mucoid liquid.

SPLEEN:

The spleen weighs 150 grams. The capsule is dark red to purple, smooth and shiny. On section the surfaces are pale red. The Malpighian corpuscles are easily visible. The parenchyma is moderately firm.

LYMPH NODES:

The peri-pancreatic nodes are enlarged measuring up to 1.0 cm. in diameter. The parenchyma is soft, and grey in color. The parenchyma bulges slightly beyond the capsule.

BONE MARROW:

The marrow samples taken from the sternum, rib, iliac crest, and vertebra is dark red and abundant.

THYROID:

Not remarkable.

ADRENALS:

Not remarkable.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal brown granular pigment lying within the cytoplasm. An occasional vessel shows slight intimal thickening. The aorta shows slight focal sclerosis.

Lungs:

Sections reveal slight emphysema and anthracosis. In some areas the bronchioles contain blood and colonies of bacteria. Here the adjacent alveoli show extensive degeneration and autolysis. The bronchiolar epithelium shows desquamation. In other areas there is beginning neutrophilic infiltration of the alveoli. Brown granular pigmented macrophages are abundant. There is marked edema in many sections.

Sections through the trachea and bronchi reveal desquamation of the surface epithelium.

Liver:

Sections reveal extensive distortion and destruction of the normal histologic pattern by accentuation of the periportal fibrous tissue. This fibrous tissue extends from triad to triad, thus bisecting many of the lobules. In some areas the fibrous replacement is so extensive that normal liver parenchyma is not identified. There is slight to moderate lymphocytic infiltration of the connective tissue. There is marked hyperplasia of the biliary canaliculae. In some sections inspissated bile fills the lumens.

Pancreas:

Not remarkable.

Esophagus:

There is marked distention of many of the submucosal vessels. Some show uneven thickening of the wall. The muscularis is not remarkable.

Bowel Wall:

Not remarkable.

Kidneys:

Sections reveal uneven fibrous thickening of the capsule. There is focal calcification of some tubules. Here, the tubular epithelium shows extensive degeneration. An occasional focus of fibrosis with atrophy of the adjacent structures lies subjacent to the capsule. Some arteries show slight to moderate intimal thickening. A few tubules contain hyaline casts.

Prostate:

Not remarkable. Many of the prostatic glands contain corpora amylacia.

Thyroid:

Not remarkable.

Adrenals:

Not remarkable.

Spleen:

Sections reveal depletion of the red and white pulp. There is some reticulum cell hyperplasia. The central arterioles show intimal thickening and hyalinization.

Lymph nodes:

The peripancreatic nodes show depletion of the lymphoid element with reticulum cell hyperplasia. Brown granular pigmented cells are identified within the medullary sinuses.

Sternum:

Sections reveal an intact periosteum. The cortex and delicate trabeculae are composed of mature cancellous bone. The marrow elements are not remarkable.

Vertebra:

The periosteum is not remarkable. The cortex is thin. The trabeculae are delicate. Both are composed of mature cancellous bone. The marrow is not remarkable.

Rib:

The periosteum and attached skeletal muscle are not remarkable. The cortex and trabeculae are composed of mature cancellous bone. The marrow is not remarkable

CASE NO. 19

A-[illegible]-56

AGE: 16

DATE OF DEATH: 6-6-56

DATE OF AUTOPSY: 8:30 a.m. 6-7-56

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Robert V. Davis

CHIEF DIAGNOSIS:

1. Trauma (rocket blast).
2. Lower nephron nephrosis.
3. Pulmonary edema.
4. Bronchopneumonia, acute, early.

COMMENT:

The immediate cause of death in this case was undoubtedly the result of a combination of factors. The most important was the trauma sustained as the result of a rocket blast. The lower nephron nephrosis was of slight to moderate degree but undoubtedly added materially to the final demise.

Blood loss into the bowel was negligable. The drop in the hematocrit can be explained away by the hemorrhage into the interstitial tissues of the right arm and leg.

Pulmonary edema and bronchopneumonia were terminal lesions, however, they added materially to the final demise.

Electrolyte studies revealed normal balance during life.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished young white man which appears the stated age. It measures 69 inches in length and weighs an estimated 170 pounds. The scalp is covered with brown hair. No abnormalities are noted in the scalp. A few excoriations measuring up to 3.0 mm. in diameter are scattered about the nose. Examination of the eyes and nasopharynx is precluded by embalming. The ear canals are dry. The nares are not remarkable. Innumerable pin point to 1.0 cm. sized excoriations are scattered about the abdomen, right arm and both legs. A recent incisional wound measuring 15.0 cm. lies in the left rectus area of the abdomen. A second wound measuring 5.0 cm. in length lies in the right lower quadrant. A penetrating wound measuring 2.0 cm. in diameter lies in the lower surface of the left forearm and extends to the bone. Similar penetrating wounds measuring 3.0 cm. in diameter lie in the right lower leg and thigh. There is marked edema of the right leg and right arm. Irregular wounds that have been repaired are scattered about the right forearm. Similar but larger wounds are scattered about the right thigh. The largest wound in the right thigh measures 27.0 cm. in length. There is a traumatic amputation of the distal 1/2 of the right foot. A "cut down" wound is present on the left ankle. A tracheotomy wound lies in the midline at the base of the neck. The posterior surfaces of the body are not remarkable. The external genitalia are essentially normal.

SEROUS CAVITIES:

The peritoneal space contains about 200 cc. of liquid and clotted blood. There is some hemorrhagic discoloration of the mesentery and omentum. The organs lie in normal relationship. The right leaf of the diaphragm lies at the level of the 4th intercostal space and the left leaf lies at the level of the 5th rib. The liver margins are smooth, shiny and tan. They extend 3.0 cm. beneath the xiphoid process in the midline and 2.0 cm. beneath the costal cartilage in the right midclavicular line. The kidneys are enlarged to palpation. The ureters are not dilated. About 15.0 cm. distal to the third portion of the duodenum lies an intact anastromoses site. The lumen is patent. At the base of the mesentery there is slight "pocketing" of the peritoneum. It measures 2.0 cm. in diameter and 4.0 cm. in length. Lying in the left lateral gutter is a laceration of the peritoneum which has been repaired by interrupted sutures. There is extensive interstitial hemorrhage of the abdominal wall including muscle, fascia and fat at the site of the previously described sugical incision. Here, the peritoneum is denuded over an area measuring 15.0 x 7.0 cm.

Each pleural space contains about 150 cc. of slightly hemorrhagic liquid. No adhesions are noted.

The pericardial space contains a few cc. of straw colored fluid. The visceral pericardium anteriorly shows focal petechial hemorrhage. The heart lies in normal position and is normal in contour.

HEART:

The heart weighs 460 grams. Sections through the myocardium reveal no abnormalities. The left ventricular myocardium measures up to 15.0 mm. in thickness and the right ventricular myocardium measures 3.0 mm. in thickness. The chambers are of normal size. The auricular appendages are essentially normal. The valves are normal and the circumferences of the valves at the rings are as follows: pulmonic, 7.0, mitral, 9.0, tricuspid, 11.0, and aortic, 6.5 cm. The interventricular and interauricular septa are intact. The coronary arteries are not remarkable.

The aorta shows slight plaque formation in the arch. No other abnormalities are noted.

LUNGS:

The right lung weighs 1210 grams. The pleura is dark red to purple. There is marked decreased crepitus throughout the dependent portions of all lobes. On section hemorrhagic frothy liquid exudes freely from all surfaces. The parenchyma is dark red to purple. The bronchi and bronchioles contain frothy hemorrhagic liquid. The vessels are not remarkable.

The left lung weighs 1200 grams and is similar to the right.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable.

The stomach contains about 250 cc. of bile stained liquid and mucus. The gastric mucosa shows moderate autolysis. The wall is not remarkable. The small bowel contains bile stained chyme. The mucosa shows focal hemorrhages. The large bowel contains small quantities of hemorrhagic stained fecal matter. No abnormalities are noted in the bowel wall.

LIVER:

The liver weighs 1800 grams. The capsule is tan to brown, smooth and shiny. On section the lobular pattern is essentially normal. The parenchyma bulges beyond the capsule. The biliary radicles and portal vein are not remarkable.

The gallbladder contains thick tenacious green bile. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 120 grams. It is normal in shape, color and consistency. On section the normal lobular pattern is present. A few foci of yellowish grey discoloration (fat necrosis) are identified.

GENITO-URINARY:

The right kidney weighs 190 grams. The capsule strips with ease revealing a smooth, shiny tan surface bearing an occasional focus of hemorrhage. The latter measures up to 4.0 mm. in diameter. On section the parenchyma bulges beyond the capsule. The cortico-medullary line is sharp. The cortex averages 8.0 to 9.0 mm. in thickness, and is tan. The medulla is purple. The calices, pelvis and ureter are not remarkable.

The left kidney weighs 210 grams and is similar to the right.

The urinary bladder is not remarkable.

The prostate measures 3.5 cm. in its greatest diameter and on section shows no abnormalities.

The seminal vesicles contain mucoid liquid.

SPLEEN:

The spleen weighs 200 grams. The capsule is smooth, shiny and purple. On section the surfaces are soft, and red to purple mottled with grey. (Malpighian corpuscles).

LYMPH NODES:

Not remarkable.

BONE MARROW:

The sternal, rib, vertebral and iliac crest marrow are dark red and abundant.

THYROID:

Not remarkable.

ADRENALS:

Not remarkable.

MICROSCOPIC DESCRIPTION

Heart:

Sections through the myocardium reveal slight focal lymphocytic infiltration. These foci lie subjacent to similar inflammatory foci in the visceral pericardium. There are no other abnormalities noted.

Lungs:

Sections reveal marked edema, congestion, intra-alveolar hemorrhage and beginning bronchopneumonia.

Liver:

Sections reveal some parenchymatous degeneration. There is slight lymphocytic and neutrophilic infiltration of the sinusoids. Foci of neutrophilic and lymphocytic infiltration of the periportal fibrous tissue are identified. These, however, are scanty. The biliary radicles and vessels are not remarkable.

Pancreas:

Sections reveal slight to moderate congestion, otherwise, no abnormalities are noted.

Bowel:

Not remarkable.

Kidneys:

Sections reveal marked parenchymatous degeneration. There is focal degeneration and necrosis of the distal portion of Henley's loops and distal convoluted tubules. The adjacent stroma shows edema with slight round cell infiltration. These lesions, however, are scanty. Brown granular casts containing a few netrophils are present in the collecting tubules. There is moderate to marked congestion. The peripelvic fibro-fatty tissue shows slight lymphocytic infiltration. The vessels are not remarkable.

Prostate:

Not remarkable.

Thyroid:

Not remarkable.

Adrenals:

Sections reveal no abnormalities except for some depletion of the cortical lipid.

Spleen:

Not remarkable except for some depletion of the lymphoid element.

CASE NO. 19

Aorta:

Not remarkable except for slight basophilic degeneration of the peri-arteriole tissues within the muscularis.

Sternum:

Sections reveal intact periosteum. The attached skeletal muscle is not remarkable. The cortex and trabeculae are composed of mature cancellous bone. The cellular marrow shows some preponderance over the fatty element.

Vertebra:

The periosteum and attached skeletal muscle are not remarkable. The cortex and trabeculae are composed of mature cancellous bone. There is some uneven decalcification of the cortex lying adjacent to the periosteum. The marrow shows a preponderance of cells over fat.

Rib:

The periosteum and attached skeletal muscle are not remarkable. The cortex and trabeculae are composed of mature cancellous bone. The marrow is similar to that previously described.

Iliac Crest:

The periosteum and attached skeletal muscle are essentially normal. The cortex and trabeculae are composed of mature cancellous bone. The marrow is essentially normal.

CASE NO. 20

A-245-56

AGE: 52

DATE OF DEATH: 2:30 a.m., June 7, 1956

DATE OF AUTOPSY: 3:30 p.m. June 7, 1956

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Robert V. Davis

CHIEF DIAGNOSIS:

1. Extensive degeneration and necrosis of the right temporal lobe of the brain.
2. Meningo-encephalitis, non-specific.
3. Aspiration and asphyxiation, marked.
4. Pulmonary edema and early bronchopneumonia.
5. Chronic myocarditis, slight, non-specific.
6. Nodular thyroid.

COMMENT:

The cause of death in this case was the result of central nervous system disease, namely, the extensive necrosis of the right temporal lobe including basal ganglia plus the chronic meningo-encephalitis. The etiologic factors involved in the necrosis of the right temporal lobe are undetermined histologically This resembles, both grossly and microscopically, an acute infarct of the brain. However, the cerebral vessels were in excellent condition. Thrombi or emboli were not identified. It is unlikely that this lesion is the result of the meningo-encephalitis, however, this possibility cannot be excluded with certainty. The meningo-encephalitis while widespread, was not extensive. Most of the infiltrate lay subjacent to the pia arachnoid and only minor changes were found within the substance of the brain. These changes are compatible with most of the encephalidities.

The chronic non-specific myocarditis, while slight, was none the less recognizable histologically and may have been secondary to the meningo-encephalitis.

The immediate cause of death was marked aspiration and asphyxiation.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white woman which appears the stated age. The scalp is covered by greying hair. Abnormalities are not identified in the scalp. Examination of the eyes and nasopharynx is precluded by embalming. The nares and ear canals are not remarkable. The breasts are normal to palpation. Lymph nodes are not remarkable. Needle puncture wounds are scattered about the ankles and antecubital fossae. A needle puncture wound lies in the lumbar area of the midline (spinal puncture). A bruise measuring 3.0 cm. in diameter lies in the midportion of the inner aspect of the right thigh. The external genitalia are essentially normal. The hair distribution is that of a normal adult female.

CASE NO. 20

PRIMARY INCISION:

The usual Y shaped incision reveals a 3.0 to 4.0 cm. layer of yellow lobulated fat. The musculature is dark red, well developed, and moist.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. The organs lie in normal relationship. The appendix is not remarkable. The pelvic organs are normal. The liver capsule is smooth, shiny and tan. The margins are acute and do not extend beneath the costal cartilage. The right leaf of the diaphragm lies at the level of the 4th intercostal space and the left leaf lies at the level of the 5th rib.

The pleural spaces contain no excess of free fluid. Adhesions are not present.

The pericardial space contains a few cc. of straw colored fluid. The heart is normal in position and contour.

HEART:

The heart weighs 350 grams. Sections through the myocardium reveal no abnormalities. The left ventricle averages 1.4 cm. in thickness and the right ventrical myocardium averages 4.0 mm. in thickness. The interventricular and interauricular septa are intact. The chambers are of normal size. The auricular appendages are normal. The valves are grossly normal. The circumferences at the rings are as follows: pulmonic, 7.0, tricuspid, 11.0, mitral, 7.5, and aortic, 6.0 cm. The aorta shows slight focal sclerosis, most marked in the abdominal portion. The coronary arteries show only slight focal atherosclerosis. There are no areas of significant narrowing or occlusion.

LUNGS:

The right lung weighs 450 grams. The pleura is dark red to purple over the dependent portions and salmon pink elsewhere. There is marked decreased crepitus throughout the dependent portion. On section copious quantities of frothy hemorrhagic liquid exudes freely from the surfaces. Food fragments and thick mucus exude freely from the bronchi and bronchioles. Foci of consolidation are not identified grossly. The bronchi and bronchioles are filled with thick grey mucus and undigested food.

The left lung weighs 500 grams and is similar to the right.

GASTRO-INTESTINAL TRACT:

The esophagus shows focal epitheliosis. The stomach contains about 100 cc. of mucus and undigested food. The small bowel contains bile stained chyme. The large bowel contains liquid yellow-brown fecal matter. No abnormalities are noted in the bowel wall.

LIVER:

The liver weighs 1250 grams. The capsule is smooth, shiny and tan to brown. The lobular pattern is essentially normal. There are no abnormalities noted in the biliary radicles or portal vein.

The gallbladder contains a few cc. of green bile. The mucosa is normal. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 140 grams and is normal in shape, color, and consistency. On section no gross abnormalities are noted.

GENITO-URINARY TRACT:

The right kidney weighs 120 grams. The capsule strips with ease revealing a few grey depressions. These measure up to 5.0 mm. in diameter. On section the cortico-medullary line is sharp. The cortex is tan and averages 7.0 to 8.0 mm. in thickness. The medulla is purple. The calices, pelvis and ureter are not remarkab

The left kidney weighs 140 grams and is similar to the right.

The urinary bladder contains a few cc. of straw colored liquid. The mucosa is pale red mottled with foci of hemorrhage measuring up to 4.0 mm. in diameter.

The uterus is normal in size. On section the myometrium is not remarkable. The endometrium is grey to pale red and measures up to 5.0 mm. in thickness. The cervix is normal.

The fallopian tubes and ovaries are not remarkable grossly.

THYROID:

The thyroid is markedly asymmetrical. The right lobe is small and the left lobe is enlarged measuring 4.0 cm. in diameter. Innumerable nodules are scattered about. Some show extensive fibrosis with focal calcification.

ADRENALS:

Not remarkable.

PITUITARY:

Not remarkable.

SPLEEN:

The spleen weighs 90 grams. The capsule is red to purple. The sectional surfaces are red mottled with grey. (Malpighian corpuscles).

LYMPH NODES:

Not remarkable.

BONE MARROW:

The sternal, rib, vertebral and left iliac crest marrow is dark red and abundant. No gross abnormalities are noted.

HEAD:

No abnormalities are noted in the scalp or calvarium. The meninges and cerebro-spinal fluid are not remarkable.

The paranasal sinuses, mastoid air cells and middle ears are normal.

BRAIN:

The brain weighs 1320 grams. There is distinct widening of the gyri with narrowing of the sulci. The hemispheres are symmetrical. The pia arachnoid is translucent. There is extensive hemorrhage, degeneration and necrosis of the right temporal lobe. This lesion extends from the temporal lobe into the basal ganglia, on the right side. The most marked area of degeneration and necrosis involves the grey matter.

Frontal sections made throughout the cerebral hemispheres reveal no additional abnormalities.

Sections through the brain stem and cerebellum show no additional abnormalitie

MICROSCOPIC DESCRIPTION

Heart:

Sections through the myocardium reveal focal degeneration and necrosis with infiltration of lymphocytes and brown granular pigmented macrophages. Elsewhere fibers showing early degeneration are identified. There is slight lymphocytic infiltration throughout. The infiltrate is diffuse and not limited to the perivascular areas. Brown granular pigment lies within most of the myocardial fibers. The right ventricular myocardium shows slight to moderate fatty infiltration. The vessels are not histologically abnormal.

Aorta:

Sections reveal slight early changes of atherosclerosis.

Lungs:

Sections reveal marked congestion with focal intra-alveolar hemorrhage and focal atelectasis. In some areas the bronchioles are filled with neutrophils and cellular debris. There is early acute bronchopneumonia. The inflammatory changes are limited to the peri-bronchiolar alveoli.

Bronchus:

Sections reveal slight to moderate lymphocytic and plasma cell infiltration of the submucosa. Here, there is moderate congestion. The glands show slight infiltration. In some areas the epithelium shows superficial erosion. The cartilage and musculature are not remarkable. An attached lymph node shows moderate to marked anthracosis with beginning fatty infiltration.

Liver:

Sections reveal slight fatty metamorphosis. Lymphocytes are lightly sprinkled about the sinusoids. The periportal fibrous tissue contains a few lymphocytes. There is moderate parenchymatour degeneration.

Pancreas:

Not remarkable, except for fatty infiltration.

Esophagus:

Sections reveal focal erosion of the epithelium. Here, there is lymphocytic and plasma cell infiltration into the submucosa. In other areas the epithelium (squamous) shows focal hyperplasia.

Bowel:

Not remarkable.

Kidneys:

Sections reveal slight congestion. No other abnormalities are noted.

Urinary bladder:

Not remarkable.

Uterus:

Not remarkable.

Spleen:

Sections reveal slight neutrophilic infiltration into the sinusoids. The lymphoid element shows moderate depletion. There is extensive congestion.

Thyroid:

Sections reveal extensive nodulation with hyalinization of the fibrous capsules. These show focal degeneration. Cholesterol slits are moderately abundant. The nodules are composed of small to large well filled follicles. In some areas the nodules appear slightly papillary. There is extensive hemorrhage with focal cyst formation. There is no evidence of malignant change.

Adrenals:

Sections reveal no abnormalities except for some depletion of the cortical lipid.

Brain:

Sections through the right temporal lobe reveal extensive degeneration and necrosis with congestion, hemorrhage and gitter cell infiltration. Macrophages are abundant. Varying stages of degeneration and necrosis are identified from area to area. Other sections reveal perivascular and perineuronal edema. There is marked lymphocytic infiltration beneath the pia arachnoid. This infiltrate extends into the sulci. In some areas perivascular lymphocytic cuffing is prominent. Occasional microscopic foci of degeneration, necrosis and lymphocytic infiltration are identified These are most prominent in the medulla. The anterior horn cells appear intact.

Calvarium:

The periosteum is not remarkable. The cortex and broad irregular trabeculae are composed of mature cancellous bone. The marrow is not remarkable.

Sternum:

The periosteum shows focal fatty infiltration, but is otherwise essentially normal. Cartilage is attached to one surface. The cortex and trabeculae are composed of mature cancellous bone showing uneven decalcification. The marrow shows some fatty preponderance.

Vertebra:

The periosteum and attached skeletal muscle are essentially normal. The cortex and trabeculae are composed of histologically mature cancellous bone. The marrow is normal.

Iliac Crest:

The periosteum and attached skeletal muscle are normal. The cortex and trabeculae are composed of mature cancellous bone showing focal uneven decalcification. The marrow is not remarkable.

CASE NO: 23

AUTOPSY NUMBER: US-55

AGE: 64

DATE OF DEATH: 5:30 am. July 22, 1956

DATE OF AUTOPSY: 4:00 p.m. July 22, 1956

PROSECTOR: Richard A. Call, M. D.

ASSISTANTS: Robert Davis and John Koense

CHIEF DIAGNOSIS:

1. Secondarily contracted kidneys, far advanced (Pyelonephritis?).
2. Occlusive coronary artery disease, right, focal. (Atherosclerosis)
3. Nephrolithiasis, bilateral.
4. Nodular hyperplasia of the prostate.
5. Subarachnoid hemorrhage, slight, focal.
6. Focal acute pancreatitis, early.

COMMENT:

The immediate cause of death in this case was undoubtedly due to a combination of factors. The most important was the marked renal damage. The etiology of the contracted kidneys was probably a bilateral chronic pyelonephritis. The differentiation of the etiology of secondarily contracted kidneys is most difficult in the terminal stages. Certain evidence indicates that this lesion is probably secondary t chronic pyelonephritis.

The occlusion of the right coronary artery is focal and is of the arteriosclerot type; however, this might represent a total occlusion with recanalization. There is no evidence, however, of myocardial infarction, either old or recent.

The focal subarachnoid hemorrhage is slight and undoubtedly contributed little to the final demise. The source of hemorrhage was not identified at autopsy.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white male, which appears the stated age. It measures 67" in length and weighs an estimated 120 lbs. The scalp is covered with brown hair admixed with grey. Embalming precludes examination of the eyes and nasopharynx. The ear canals are dry. The nares are not remarkable. A bruise lies at the lateral margin of the right eye. A similar bruise lies in the right pectoral area. Bruises are scattered about the right arm and leg. An annular bruise, measuring 5 cm. in diameter, lies on the left upper arm. The external genitalia are not remarkable. The hair distribution is that of a normal adult male.

PRIMARY INCISION:

The usual Y-shaped incision reveals a 1 cm. layer of yellow lobulated fat. The musculature is dark red, well developed and moist.

SEROUS CAVITIES:

The peritoneal space contains about 100 ml. of dark straw colored fluid. The organs lie in normal relationship. The appendix is not remarkable. The kidneys are

small to palpation and the ureters are not dilated. The spleen is normal to palpatio
The liver margin does not extend beneath the costal cartilages. The capsule is tan and the margins are acute.

The pleural spaces contain no excess of free fluid. Adhesions are not present.

The pericardial space contains a few cc. of straw colored fluid. The heart is normal in contour and lies in normal position.

HEART:

The heart weighs 460 gms. Multiple sections reveal no abnormalities. The interventricular and interauricular septa are intact. The chambers are of normal size. The valves are grossly normal. The circumference of the valves at the rings are as follows: pulmonic, 7.5 cm., tricuspid 11 cm., mitral 9 cm., and aortic 7 cm. The auricular appendages contain postmortem clots. The left ventricular myocardium averages 17 mm. in thickness and the right ventricular myocardium averages 45 mm. in thickness. Sections through the left coronary artery reveal slight focal sclerosis; no areas of significant narrowing or occlusion are identified. Lying 4 cm. distal of the ostium of the right coronary artery lies an area of marked narrowing. Here the lumen measures less than a mm. (pin point) in diameter. At one point, the lumen appears grossly obliterated. Lying posteriorly at the juncture of the right auricle and ventricle lies an area of fibrin deposition measuring about 3 cm. in diameter. Sections reveal no gross abnormalities.

LUNGS:

The right lung weighs 430 gm. The pleura is salmon pink mottled with anthracoti
pigment. The dependent portions are dark red to purple. Crepitus is normal throughout. On section, there is some congestion of the dependent portions. Elsewhere, the parenchyma is salmon pink mottled with anthracotic pigment. The bronchi and bronchio
contain thick mucoid liquid. The vessels are not grossly abnormal.

The left lung weighs 450 gm. and is similar to the right.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable. The stomach contains a few cc. of mucus. The mucosal and rugal patterns are essentially normal. The small bowel contains bile-stained chyme and the large bowel contains a small quantity of brown fecal matter. No abnormalities are noted in the bowel wall.

LIVER:

The liver weighs 1400 gm. The capsule is smooth, shiny, and tan to brown. On section, the lobular pattern is essentially normal. The biliary radicles and porta
vein are not remarkable.

The gallbladder is filled with thick green bile. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 140 gm. and is normal in shape, color, and consistency.

GENITO-URINARY:

Each kidney weighs 60 gm. The capsules strip with moderate difficulty, lacerating portions of the cortex, revealing coarsely granular surfaces. The elevations are tan and the pits are grey. A few cysts, measuring up to 5 mm. in diameter are scattered about the cortices. On section, the cortico-medullary lines are obscured. The cortices are granular and pale red. The medulla is purple streaked with yellow and orange. Lying within the calices and the pelves are innumerable calculi varying in size from 1 to 9 mm. The pelvic mucosa is pale tan to grey and is finely granular. There is an increase in the peri-pelvic fat.

The ureters are not remarkable.

The urinary bladder contains a few cc. of straw colored fluid. No other abnormalities are noted.

The prostate measures 5 x 4 x 4 cm. On section, circumscribed nodular masses project above the adjacent tissue. These vary in size from 5 to 15 mm.

The seminal vesicles contain tan mucoid liquid.

SPLEEN:

The spleen weighs 220 gm. The capsule is red to purple. On section, the parenchyma is moderately firm and is red to purple. The Malpighian corpuscles are not easily visible grossly.

LYMPH NODES:

Not remarkable, except for the tracheal-bronchial nodes which show slight enlargement. On section, the surfaces are grey mottled with black.

BONE MARROW:

Sections taken from the sternum, rib, calvarium, vertebra and iliac crest reveal no abnormalities.

THYROID:

The thyroid weighs 50 gm. The surfaces are tan and show a normal colloid sheen. Sections reveal no abnormalities.

ADRENALS:

Not remarkable.

PITUITARY:

Not remarkable.

HEAD:

No abnormalities are noted in the scalp or calvarium. The cerebro-spinal fluid shows slight xanthochromia. The meninges are not remarkable. The paranasal sinuses, mastoid air cells and the middle ears are grossly normal.

CASE NO. 23

BRAIN:

The brain weighs 1320 gm. The hemispheres are symmetrical. Lying in the central sulcus on the left side is a small blood clot extending from the longitudinal fissure to the cerebral-lateral fissure. The site of hemorrhage is not determined grossly. The pia arachnoid is not remarkable. The arteries at the base of the brain show only slight sclerosis. Sections made through the cerebral hemisphere reveal a symmetrical ventricular system. The cerebro-spinal fluid shows only slight xanthochromia. Lying at the level of the optic chiasm within the basal ganglia are a few mm. to 2 mm. sized cystic structures. No other abnormalities are noted. Sections through the cerebellum and brain stem reveal no gross abnormalities.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal slight intimal thickening of some arteries and arterioles. At one level, the coronary arteries show marked thickening with almost total lumenal obliteration. Brown pigmented macrophages are scattered about the wall. Pigmented macrophages lie within the intima, adjacent to the muscularis. The myocardium shows moderate atrophy. Brown granular pigment lies within the cytoplasm of many of the myocardial fibers. In some areas, there are foci of fibrosis of the muscularis. There is focal fatty infiltration, most marked in the periarterial areas. One section shows lymphatic and plasma cell infiltration of the pericardium, with slight fibrin deposition.

Lungs:

Sections reveal slight emphysema. Brown to black pigmented macrophages are scattered about the alveoli in some areas.

Liver:

There is slight lymphocytic infiltration of the periportal fibrous tissue in some areas. Some arteries and arterioles show slight to moderate intimal thickening.

Pancreas:

There is slight to marked neutrophilic infiltration within the interstitial connective tissue. Foci of degeneration and necrosis of pancreatic parenchyma with marked neutrophilic infiltration are present.

Gallbladder:

Sections reveal far advanced autolysis.

Bowel:

Not remarkable.

Kidneys:

Sections reveal marked degeneration and distortion of the normal histologic architecture. There is marked interstitial fibrosis with destruction of glomeruli and associated tubules. Here, there is focal lymphocytic infiltration. In other areas, some glomeruli show epithelial hyperplasia with distinct crescent formation. Capsular adhesions are scattered about. Many tubules show extensive atrophy and fibrosis and others show distention. Many contain hyaline casts. Some arteries and arterioles show slight to marked intimal thickening. Lymphocytes are lightly sprinkled about the peripelvic fibro-fatty tissue.

Prostate:

Nodular hyperplasia.

Thyroid:

Not remarkable.

Pituitary:

Not remarkable.

Spleen:

Sections reveal depletion of the red pulp. The sinusoids are lined by hyperplastic endothelium in some areas. The arteries and arterioles show slight intimal thickening.

Brain:

Sections reveal slight subarachnoid hemorrhage, focal. There is slight perivascular rarification of brain parenchyma. Lying within the perivascular space are brown granular pigmented macrophages.

Calvarium:

Sections reveal dense bone containing a few marrow spaces. The latter contain cellular and fatty marrow. No significant abnormalities are noted. The periosteum is absent.

Sternum:

The periosteum is intact. The attached skeletal muscle is not remarkable. The cortex and trabeculae are composed of mature delicate bone. The marrow shows focal granulocytic cell hyperplasia.

Vertebra:

The periosteum is intact and shows no significant abnormalities. The cortex and trabeculae are composed of mature cancellous bone. The marrow is similar to that previously described. The intervertebral disc is essentially normal.

Rib:

The intact periosteum is not remarkable. The skeletal muscle and fibro-fatty tissue are normal. The cortex and trabeculae are composed of mature cancellous bone. The bone marrow is similar to that previously described.

Iliac Crest:

The intact periosteum is not remarkable. The associated skeletal muscle and fibro-fatty tissue are normal. The cortex and trabeculae are composed of mature bone The bone marrow is not remarkable.

CASE NO. 24

A-262-56

AGE: 70

DATE OF DEATH: 8-16-56

DATE OF AUTOPSY: 8:00 a.m., 8-17-56

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Robert V. Davis

CHIEF DIAGNOSIS:

1. Subdural hematoma, marked, secondary to trauma.
2. Hyperostosis frontalis interna.
3. Bronchopneumonia, slight, early.
4. Arteriolonephrosclerosis, slight to moderate.
5. Focal chronic pancreatitis, slight.
6. Arterio and arteriolosclerosis, generalized, slight to marked.
7. Splenic infarcts.
8. Leiomyoma uteri.
9. Cholelithiasis.
10. Nodular thyroid.

COMMENT:

The immediate cause of death in this case was due to the extensive subdural hematoma. This followed a distinct episode of trauma. Other conditions are of great interest, which may have added some to the final demise.

The hyperostosis frontalis, while of great interest, was of no significance in the terminal episode. The pituitary showed no evidence of hyperplasia.

The splenic infarcts are unexplained.

The pancreatitis was of slight degree and focal. It may have resulted in some difficulty prior to death.

GENERAL DESCRIPTION:

This is the body of a well developed moderately obese elderly white woman which appears the stated age. It measures 65 inches in length and weighs 135 pounds. The scalp is covered with grey brown hair. A crusted excoriation measuring 2.5 x 0.3 cm. lies on the right temple. The nares are not remarkable. The ear canals are dry. Embalming precludes examination of the eyes, mouth, and nasopharynx. The breasts are pendulous but are not remarkable otherwise. There are no palpable exostoses or skeletal deformities. Sabershins are absent. The external genitalia are essentially normal. The hair distribution is that of a normal adult female. There is a 2 plus pitting edema of both lower legs. There are bilateral bunions. A well healed appendectomy scar lies in the right lower quadrant. A bruise measuring 3.0 cm. in diameter lies over the left knee. Similar but smaller bruises are scattered about the left lower leg. A catheter lies within the urinary bladder.

PRIMARY INCISION

The usual Y shaped incision reveals a 5.0 cm. layer of yellow lobulated fat. The musculature is dark red, well developed and moist.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. The organs lie in normal relationship. The appendix is absent. Fibrous adhesions lie between the transverse colon and the fundus of the gallbladder. The spleen is markedly enlarged to palpation. The kidneys are normal to palpation and the ureters are not dilated. The liver does not extend beneath the rib cage. The right leaf of the diaphragm lies at the level of the 4th intercostal space and the left leaf lies at the level of the 5th rib.

The right pleural space is partially obliterated by fibrous adhesions. The left pleural space contains about 50 cc. of straw colored fluid. Adhesions are not present. Pneumo-thorax is absent.

The pericardial space contains no excess of free fluid. The heart is normal in contour and position.

HEART:

The heart weighs 350 grams. Sections through the myocardium reveal no abnormalities. The left ventricular myocardium averages 12.0 to 15.0 mm. in thickness and the right ventricular myocardium varies from 3.0 to 5.0 mm. in thickness. The chambers are essentially normal. The auricular appendages contain post-mortem clot but are otherwise normal. The interventricular and interauricular septa are intact. The valves are grossly normal. The circumferences at the rings are as follows: pulmonic, 7.5; tricuspid, 12.0; mitral, 9.0, and aortic, 8.0 cm. Sections through the coronary arteries reveal an area of focal atheromatosis with marked lumenal narrowing. Here the lumen is obliterated an estimated 75%. This lies within the anterior descending branch 3.0 cm. distal to the orifice of the left coronary artery.

The aorta shows slight atherosclerosis becoming more marked as it is descended. A few foci of calcification are present in the abdominal portion.

LUNGS:

The right lung weighs 450 grams. The pleura over the upper lobe is salmon pink mottled with slight anthracosis. Fibrous adhesions partially cover the surface. The interiobar fissures are similarly obliterated by fibrous adhesions. The middle and lower lobe pleura is dark red to purple. Here, the parenchyma shows moderate decreased crepitus. On section the surfaces are salmon pink to dark red-purple. In the middle and lower lobes, the bronchioles contain a thick creamy grey liquid. The parenchyma is moderately firm and is dark red to purple. Hemorrhagic and edema fluid in small quantities can be expressed from the parenchyma. Sections through the upper lobe reveal salmon pink to red parenchyma. The bronchi and bronchioles contain copious quantities of thick grey creamy liquid. There is moderate obstruction of the lumen.

The left lung weighs 350 grams. The changes are similar to but less marked than those described in the right lung.

GASTRO-INTESTINAL:

The esophagus shows slight epitheliosis of the distal one-third.

The stomach contains bile stained mucus. The mucosal and rugal patterns are normal.

The small bowel contains bile stained chyme. The large bowel contains brown fecal matter. No abnormalities are noted in the wall.

LIVER:

The liver weighs 1940 grams. The capsule is smooth, shiny and tan. On section the parenchyma bulges beyond the capsule. The lobular pattern is partially obscured. The parenchyma is somewhat softer and more friable than usual. The biliary radicles and portal vein are not remarkable.

The gallbladder contains a solitary mixed type calculus measuring 8.0 x 5.0 cm. The mucosa is pale grey to green. The cystic duct is partially obliterated. The common duct is patent.

PANCREAS:

The pancreas weighs 105 grams. It is normal in shape, color and consistency On section there is slight fatty infiltration.

GENITO-URINARY:

The right kidney weighs 170 grams. The capsule strips with slight difficult revealing a finely granular surface bearing an occasional 5.0 mm. sized inclusio cyst. On section the cortico-medullary line is sharp. The cortex is tan to pal red and is finely granular. The medulla is purple. The peripelvic fat is prominent. The calices, pelvis and ureter are normal.

The left kidney weighs 165 grams and is similar to the right.

The urinary bladder is essentially normal.

The uterus is markedly asymmetrical, due to a hard nodule projecting from the anterior surface of the fundus. This nodule measures 4.0 cm. in diameter and on section the surfaces are grey and whorled. Sections elsewhere are not remarkable. The endometrium is soft and grey to red. It measures less than 1.0 mm. in thickness. The cervix is not remarkable.

The fallopian tubes and ovaries are normal.

SPLEEN:

The spleen weighs 310 grams. The capsule is dark red to purple. On section the surfaces are red mottled with grey. Lying in the central portion about 1.0 cm. subjacent to the capsule is an area of infarction measuring about 2.0 cm. in diameter. Here, the parenchyma is soft, mushy and red to orange.

LYMPH NODES:

Not remarkable.

BONE MARROW:

Dark red and abundant. Sections are taken from the calvarium, sternum, 6th rib, lumbar vertebrae and iliac crest.

THYROID:

The thyroid weighs 10 grams. On section nodular masses measuring up to 1.0 cm. in diameter are present. The parenchyma is tan and shows a normal colloid sheen.

ADRENALS:

Not remarkable.

PITUITARY:

Not remarkable.

HEAD:

There is an area of bluish discoloration lying within the scalp over the right parietal area. The lesion measures 4.0 cm. in diameter. The subjacent periostium and calvarium are not remarkable. The calvarium is removed with much difficulty due to the unusual thickness. The calvarium varies in thickness from 6.0 mm. in the temporal regions to 21.0 mm. over the frontal bone and 15.0 mm over the occipital bone. The external surface is smooth and shiny. The inner surface is irregular and distinctly nodular. Innumerable exostoses are scattered about. These project above the adjacent tissue by about 5.0 mm. The most marked irregularity lies in the anterior portion of the frontal bones. Posteriorly the surfaces are somewhat wrinkled and irregular but less marked than that previously described. The sectional surfaces show a marked decrease in marrow spaces.

The meninges are not grossly remarkable. Lying subjacent to the dura on the right side is an hematoma measuring 15.0 x 15.0 x 4.0 cm. This results in marked deformity of the brain. The blood clot lies entirely within the subdural space. The hematoma is well formed and dark red. There is no membrane visible grossly. The hemorrhage corresponds to the location of the overlying bruise in the scalp. The site of hemorrhage is not identified. Lacerations in the meninges are not identified. The calvarium shows no evidence of fracture. The paranasal sinuses mastoid air cells and middle ears are normal.

BRAIN:

The brain weighs 1000 grams. There is marked deformity of the cerebral hemispheres due to previously described subdural hematoma. The shape is roughly triangular with the apex lying in the midline. The sulci are essentially normal. The gyri are grossly normal except for slight flattening, most marked on the right side. The arteries and arterioles at the base show only slight atherosclerosis. Sections through the cerebral hemispheres reveal no abnormalities. There is a focus of subarachnoid hemorrhage measuring 1.5 cm. lying over the right lateral aspect of the parietial lobe. The site of rupture is not identified grossly. Sections throug the cerebellum and brain stem reveal no gross abnormalities.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal slight arterio- and arteriolosclerosis. Foci of perivascula and interstitial fibrosis are scattered about. There is slight fatty infiltration of the myocardium.

Lungs:

Sections reveal focal emphysema, congestion and edema. Some sections show abundant purulent exudate within the bronchi and bronchioles. The adjacent alveoli show early bronchopneumonia.

Liver:

Sections reveal intimal thickening of arteries and arterioles. The periporta fibrous tissue shows slight to moderate lymphocytic infiltration,

Pancreas:

Sections reveal focal atrophy and fibrosis of parenchyma. The most markedly involved structures are the acini. The islets appear uninvolved. In some areas the is moderate lymphocytic and plasma cell infiltration, most marked in the zones of atrophy and fibrosis. Some arteries and arterioles show intimal thickening.

Kidneys:

Sections reveal some uneven fibrous thickening of the capsule. Foci of atrophy with interstitial fibrosis are scattered about. The involved structures including glomeruli show fibrosis with hyalinization. Lymphocytes are lightly sprinkl about these areas. Arteries and arterioles show slight to moderate intimal thickeni In some cases, there is significant luminal narrowing.

Uterus:

Sections reveal leiomyoma.

Thyroid:

Sections reveal a nodular thyroid.

Pituitary:

Not remarkable.

Brain:

Sections reveal some perivascular and perineuronal edema. Some of the arterioles show slight intimal thickening. There is focal perivascular hemorrhage.

Calvarium:

The periosteum is absent. The trabeculae are broad. Only a few marrow spaces are scattered about. Marrow is absent.

Vertebra:

Sections reveal intact periosteum. A few thickened vessels are identified. The cortical bone and trabeculae are delicate. The cellular marrow is predominant. The granulocytic cells show moderate hyperplasia.

Sternum:

The periosteum is intact. The cortex is not remarkable. The trabeculae are intact and are delicate. The marrow shows a predominance of the granulocytic cell series. No significant abnormalities are noted.

Rib:

The attached skeletal muscle is not remarkable. The periosteum is intact. The cortex and trabeculae are not remarkable. The marrow is similar to that previously described.

Iliac Crest:

Skeletal muscle and periosteum are not remarkable. The cortex and trabeculae are intact. The marrow is similar to that previously described. Abnormalities are not identified.

CASE NO. 25

AUTOPSY NO. US-58

AGE: 74

DATE OF DEATH: August 13, 1956

DATE OF AUTOPSY: 3:00 p.m., August 13, 1956.

PROSECTOR: Richard A. Call, M. D.

ASSISTANTS: Robert V. Davis and John Koense.

CHIEF DIAGNOSIS:

1. Acute bronchopneumonia, extensive, bilateral.
2. Adenocarcinoma of the thyroid.
3. Arteriosclerotic atrophy of the brain.
4. Rheumatic type heart disease, aortic stenosis, slight.
5. Bilateral inguinal hernias.
6. Amputation of the left thumb, traumatic.
7. Lipoma of the left chest wall.
8. Edentia totalis.

COMMENT:

The immediate cause of death in this case was due to the extensive acute bronchopneumonia. The adenocarcinoma of the thyroid appeared localized. Evidence of metastases were not identified. This tumor undoubtedly resulted in local symptoms of compression.

The atrophy of the brain was undoubtedly due to the arteriosclerosis. This explains away the clinical diagnosis of senile psychosis. The site of the previous craniotomy was not identified.

GENERAL DESCRIPTION:

This is the body of a well developed, poorly nourished, elderly, white man, which appears the stated age. It measures 68 " in length and weighs an estimated 85 lbs. The scalp is partially covered with grey hair. The thyroid is markedly asymmetrical, the right side being markedly enlarged and nodular. The left lobe cannot be palpated. The ear canals are dry. The pupils are round and equal, measuring 3 mm. in diameter. The nares are not remarkable. There is edentia totalis. A subcutaneous tumor (lipoma) measuring 5 cm. in diameter lies in the posterior aspect of the left chest wall. The distal phalanx of the first digit of the left hand is absent. A well-healed incisional scar lies in the right lower quadrant. The right testes shows moderate atrophy; otherwise, the external genitalia are essentially normal. There are bilateral inguinal hernias. There is no evidence of bone deformity or sabre shin.

PRIMARY INCISION:

The usual Y-shaped incision reveals a 3 mm. layer of tan fat over the lower midline. The musculature is moderately well developed and is dry and dark red.

SERCUS CAVITIES:

The organs lie in normal relationship. The appendix is absent. The liver does not extend beneath the rib cage. The right leaf of the diaphragm lies at the level of the 4th rib and the left leaf lies at the level of the 4th intercostal space. The kidneys are normal to palpation and the ureters are not dilated. The spleen is normal to palpation. A few adhesions lie between the transverse colon and the gall bladder.

The pleural spaces contain no excess of free fluid. No adhesions are noted.

The pericardial space contains a few cc. of straw colored fluid. The heart is normal in position and contour.

HEART:

The heart weighs 390 gm. Sections through the myocardium reveal no abnormalities. The chambers are of normal size. The right ventricular myocardium averages 3 to 5 mm. in thickness and the left ventricular myocardium averages 10 to 12 mm. in thickness. The interventricular and interauricular septa are intact. The auricular appendages are normal. The valves are grossly normal with the exception of the aortic. Here, there is distinct fusion between all cusps. Fusion is apparently of equal degree, however. Lying between the posterior and the right lateral cusp there is focal calcification. Calcific excresences lie within the sines of Valsalva. These measure up to about 7 mm. in diameter. Vegetations are not identified. The circumferences of the valves at the rings are as follows: pulmonic 8 cm; tricuspid 11.5 cm; mitral 9 cm; and aortic 8 cm. Sections through the coronary arteries reveal slight to moderate atherosclerosis, most marked in the proximal 3 cm. of the left coronary artery. Here, there is calcification with lumenal narrowing.

The aorta shows slight atherosclerosis, becoming more marked as it is descended. There is no evidence of calcification or ulceration.

LUNGS:

The right lung weighs 530 gm. The pleura is salmon pink to dark red and purple mottled with slight quantities of anthratocic pigment. Millimeter to 5 mm.-sized nodules are palpated throughout the apical and subapical segments of the upper lobe. Emphysematous bullae are scattered about the subapical area of the upper lobe. These measure up to 3 to 4 cm. in diameter. There is slight decreased crepitus throughout the dependent portions of the lower lobe. Fibrinous adhesions lie between the inter-lobar fissures. On section, the parenchyma varies in color from salmon pink to purple. The dependent portion of the lower lobe is dark red mottled with a few nodular foci of pale red to grey. These exude copious quantities of thick grey liquid. Elsewhere, the parenchyma is not remarkable. The bronchi and bronchioles contain thick, grey liquid. The pulmonary artery and vein are not remarkable.

The left lung weighs 610 grams and is similar to the right; however, the consolidation is more extensive within the lower lobe.

GASTRO-INTESTINAL:

The esophagus is not remarkable. The stomach contains a few cc. of bile-stained mucus and liquid. The mucosal and rugal patterns are normal. The small bowel contains bile-stained chyme and the large bowel contains a small quantity of formed fecal matter. No abnormalities are noted in the bowel wall.

LIVER:

The liver weighs 1100 gm. The capsule is smooth, shiny and tan. The margins are acute. On section, the lobular pattern is present. Slight quantities of hemorrhagic liquid exude from the parenchyma. The biliary radicles and portal vein are not remarkable.

The common duct is patent and measures up to 7 mm. in diameter. The gall bladder shows marked atrophy and partial fibrosis. The cystic duct is obliterated. Lying within the lumen of the gall bladder are a few calculi of the mixed type. The serosa is covered by dense fibrous adhesions. The mucosa is green.

PANCREAS:

The pancreas weighs 70 gm. It is normal in shape, color, and consistency.

GENITO-URINARY:

The right kidney weighs 160 gm. The capsule strips with ease revealing a smooth, shiny, tan surface, bearing an occasional pit and an occasional inclusion cyst. The latter measure up to 5 mm. in diameter while the pits measure as much as 1 cm. in diameter. On section, the cortico-medullary line is sharp. The cortex is tan to pale red and measures 8 to 10 mm. in thickness. The medulla is purple. There is slight increase in peri-pelvic fat. The calices, pelvis and ureter are normal.

The left kidney weighs 140 gm. and is similar to the right.

The urinary bladder is not remarkable.

The prostate measures 4.5 cm. in its greatest diameter. On section, the surfaces are grey mottled with pale red. Nodules are not identified grossly. The seminal vesicles contain thick tan mucoid liquid.

SPLEEN:

The spleen weighs 120 gm. The capsule is purple mottled with innumerable pearly grey plaques. The largest measures 3 m. in diameter and lies near the hilus. On section, these plaques measure up to 2 mm. in thickness. The splenic parenchyma is dark red to purple. The malpighian corpuscles are easily visible grossly.

LYMPH NODES:

Not remarkable.

BONE MARROW:

Dark red and abundant. Samples of bone are taken from the calvarium, sternum, 6th rib, vertebra and iliac crest.

THYROID:

The thyroid weighs 120 gm. and is markedly asymmetrical. The entire enlargement lies within the right lobe. Innumerable nodular masses are scattered about.

There is distinct invasion with breakdown of the capsule and adjacent muscle tissue. There is distinct compression of the trachea. The serosa of the carotid artery show invasion; however, the intima is not remarkable. On section, the parenchyma is smooth, shiny and glistening, and is tan, mottled with red and purple. A few cystic structures are scattered about. Some contain soft necrotic papillary tumor tissue.

ADRENALS:

A grey tumor lies within the left adrenal gland. It measures 1 cm. in its greatest diameter and lies within the medulla. It is smooth, shiny, moderately firm and gritty. A similar, but much smaller, lesion lies within the right adrenal.

PITUITARY:

Not remarkable.

HEAD:

No abnormalities are noted in the scalp or calvarium. The meninges are not remarkable. There is a moderate increase in the amount of cerebro-spinal fluid. The paranasal sinuses, mastoid air cells and middle ears are normal.

BRAIN:

The brain weighs 1310 gm. There is marked diffuse atrophy with narrowing of the gyri and widening of the sulci. The pia arachnoid shows uneven fibrous thickening; however, adhesions are not present. There is slight softening of the cerebral hemispheres. The arteries at the base of the brain show moderate to marked focal atherosclerosis with narrowing. There are no areas of total occlusion or rupture.

DESCRIPTION OF BRAIN FOLLOWING FIXATION:

The fixed brain weighs 1290 gm. There is slight asymmetry of the cerebral hemispheres, due to focal areas of atrophy. The largest of these measures 4.5 x 2.5 cm. and lies in the parietal lobe adjacent to the midline on the left side. There is marked narrowing of the gyri with significant widening of the sulci. The pia arachnoid shows focal fibrous thickening. Sections made through the cerebral hemispheres reveal a symmetrical ventricular system. The previously described foci of atrophy are limited to the grey matter. The white matter is not abnormal. The basal ganglia are not remarkable. There is questionable softening of the white matter subjacent to the areas of atrophy.

Sections through the brain stem and cerebellum reveal no significant abnormalities.

MICROSCOPIC DESCRIPTION

Heart:

There is slight intimal thickening of some arteries and arterioles. Some of the myocardial fibers contain intra-cytoplasmic brown granular pigment.

Lungs:

Sections reveal extensive bronchopneumonia. There is focal emphysema and atelectasis. The pleura shows uneven fibrous thickening and anthracosis. Some arteries and arterioles show intimal thickening. There is focal peri-vascular fibrosis with macrophagic infiltration. These are generally associated with emphysematous bullae.

Liver:

In some areas, the arteries and arterioles show intimal thickening.

Pancreas:

Not remarkable except for slight fatty infiltration. An occasional artery and arteriole shows intimal thickening.

Kidneys:

Sections reveal an occasional sub-capsular focus of fibrosis with atrophy and fibrous replacement of the associated structures. An occasional cyst lies subjacent to the capsule within the cortex. Some glomeruli show fibrosis and hylanization. There is slight intimal thickening of some arteries and arterioles. One section reveals lymphocytic infiltration of the peripelvic fibro-fatty tissue.

Prostate:

Sections reveal nodular hyperplasia.

Thyroid:

Sections reveal marked extensive replacement of normal parenchyma by malignant papillary type tumor. The tumor cells show moderately abundant eosinophilic cytoplas The nuclei are round or oval and vesiculated.

The chromatin is clumped in many areas. Nucleoli are not prominent. Mitotic figures are scanty. Bizarre shaped cells are present. Giant mononuclear cells are abundant. In some areas, gland-like structures are identified, some of which contain a homogeneous colloid substance. In most areas, however, the tumor appears in papillary fashion. There is marked fibrous thickening and hyalinization of the capsule. Similar foci of fibrosis are scattered about the parenchyma. There is focal calcification, and in some areas, marked degeneration and necrosis. Here, neutrophilic infiltration and brown granular pigmented macrophages are abundant. Cholesterol slits are identified in many areas. There is distinct tumor invasion of the capsule.

Adrenals:

Sections reveal some depletion of the cortical lipid. The capsular arteries and arterioles show slight intimal thickening. The medulla shows lymphocytic infiltration. Tumor tissue is not identified histologically. The medulla shows distinct hyperplasia.

Spleen:

Sections reveal marked uneven fibrous thickening and hyalinization of the capsule. There is focal calcification. The arteries and arterioles show moderate to marked intimal thickening. There is some depletion of the lymphoid element. There is accentuation of reticulum cells.

Brain:

Sections reveal extensive intimal thickening and hyalinization of arteries and arterioles. Many show moderate lumenal narrowing. There is focal perivascular hemorrhage. All sections show slight to marked perivascular and perineuronal edema. In some areas, there is distinct condensation of parenchyma with gliosis. Perivascular lymphocytic infiltration is present.

Calvarium:

The periosteum is absent. The cortex is intact and the trabeculae are broad but not abnormal. The marrow spaces are moderately abundant and primarily contain fat. A few cells are sprinkled about some areas. Thickened vessels are present.

Sternum:

The periosteum is intact and contains thick-walled vessels, some of which show almost total lumenal obliteration. The cortex is thin. The trabeculae are delicate and mature. The granulocytic cell series is moderately hyperplastic.

Vertebra:

Sections reveal intact periosteum showing thickened vessels and slight peri-vascular lymphocytic infiltration. The intervertebral disc is intact. The cortex and trabeculae are delicate and mature. The marrow is similar to that previously described.

Rib:

The skeletal muscle and periosteum are not remarkable. Thickened blood vessels are present. Peripheral nerves are identified. The cortex and trabeculae are mature, delicate, and the marrow is similar to that previously described. No abnormalities are noted.

Iliac Crest:

The skeletal muscle and periosteum show no significant abnormalities except for some thickened vessels. Spincules of bone lie within the periosteum. The cortex and trabeculae are mature and are delicate. The marrow is composed of about equal portions of cellular and fatty marrow.

CASE NO. 26

AUTOPSY NO: US-59

AGE: 55

DATE OF DEATH: August 24, 1956

DATE OF AUTOPSY: August 24, 1956, 1:30 pm.

PROSECTOR: Richard A. Call, M. D.

ASSISTANTS: Mr. Robert V. Davis, Mr. John Koense

CHIEF DIAGNOSIS:

1. Acute bronchopneumonia, bilateral, extensive.
2. Nodular thyroid.
3. Endometrial polyp.

COMMENT:

The immediate cause of death was due to bilateral acute bronchopneumonia. The other lesions are of interest, but played no part in the final demise.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white woman, which appears the stated age. It measures 66" in length and weighs an estimated 125 pounds. The scalp is covered with straight, long black hair. The pupils are round and equal, measuring 6 mm. in diameter. The nares are not remarkable. There are marked far advanced dental caries and poor oral hygeine. The nasopharynx is not remarkable. The ear canals are dry. The superficial lymph nodes are not palpable. There is marked dependent livor mortis. Excoriations are present over the knees and elbows. An abrasion is present over the right elbow, measuring about 4 cm. in diameter. A bruise, measuring 2 cm. in diameter, lies over the shin of the right lower leg. The breasts are not remarkable. A well-healed linear scar lies in the lower midline of the abdomen. It measures 8 cm. in length. The external genitalia are essentially normal. The hair distribution is that of a normal adult female. There is no evidence of exostosis, saber shin or skeletal deformities.

PRIMARY INCISION:

The usual Y-shaped incision reveals a 3 cm. layer of yellow lobulated fat. The musculature is dark red, well-developed and moist.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. Fibrous adhesions lie between the large bowel and the anterior abdominal scar and extend from the fundus of the gall bladder to the scar. The appendix measures 4 cm. in length and shows narrowing at the tip. The organs lie in normal relationship. The right leaf of the diaphragm lies at the level of the 5th rib and the left leaf lies at the level of the 5th intercostal space. The liver does not extend beneath the costal border. The kidneys are normal to palpation and the ureters are not dilated.

The right pleural space contains no excess of free fluid. Adhesions are not present. The pericardial space contains a few ml. of straw colored fluid. The heart is normal in contour and position.

HEART:

The heart weighs 220 gm. Sections through the myocardium reveal no abnormaliti The right ventricular myocardium averages 3 mm. in thickness and the left ventricular myocardium averages 1.2 cm. in thickness. The chambers are essentially normal. The interventricular and interauricular septa are intact. The valves are normal. The circumferences at the rings are as follows: pulmonic 6.5 cm; tricuspid 12.5 cm; mitral 8.5 cm; and aortic 7 cm. The auricular appendages are essentially normal. The aorta shows slight focal atherosclerosis, becoming more marked as it is descended. There is no calcification.

LUNGS:

The right lung weighs 250 gm. The pleura is salmon-pink to red-purple, mottled with anthracotic pigment. There is decreased crepitus throughout the lower portion of the upper lobe. Here the pleura is dark red to purple. On section the surfaces are salmon-pink to red mottled with anthracotic pigment, except the lower portion of the right upper lobe, where the parenchyma is firmer than normal. Here, irregular, dry grey nodules project above the adjacent tissue. Purulent liquid is easily expressed from these nodules. A small quantity of purulent liquid lies within the bronchi and bronchioles.

The left lung weighs 310 gm. The pleura is salmon-pink to red mottled with anthracotic pigment. There is marked decreased crepitus throughout the lower portion of the upper lobe; here a nodular mass measuring 7 cm. in diameter is identified. On section the surfaces of the mass are red mottled with dry elevated grey nodules. Purulent liquid can be expressed from these nodules. The bronchi and bronchioles contain marked quantities of purulent liquid. Elsewhere, the parenchyma is not remarkable. The pulmonary vessels are essentially normal.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable. The stomach contains a few ml. of bile-staine mucus. The mucosal and rugal patterns are normal. The small bowel contains bile-stained chyme. The large bowel contains soft brown fecal matter; no abnormalities are noted in the bowel wall. The appendix measures 4 cm. in length and varies in diameter from 3 mm. at the tip to 5 mm. at the base.

LIVER:

The liver weighs 700 gm. The capsule is smooth, shiny and tan to purple. On section the normal lobular pattern is present. The biliary radicles and portal vein are patent. No gross abnormalities are noted. The common and cystic ducts are patent. The gallbladder contains a few cc. of thick green bile. The mucosa is slightly granular. The serosa is covered by fibrous adhesions.

PANCREAS:

The pancreas weighs 80 gms. It is normal in shape, color and consistency.

GENITO-URINARY:

The right kidney weighs 90 gm. The capsule strips with ease, revealing a smooth, shiny tan surface. On section the cortico-medullary line is sharp. The cortex averages 7 to 8 mm. in thickness and is tan. The medulla is purple. The calices, pelvis and ureter are essentially normal.

The left kidney weighs 100 gm. and is similar to the right.

The urinary bladder is not remarkable. The fallopian tubes and ovaries are essentially normal.

The uterus is infantile, measuring only 4.0 x 1.5 cm. The endometrial cavity contains a polyp measuring 1.7 x 0.7 cm. The surfaces are grey mottled with foci of hemorrhage.

THYROID:

The thyroid weighs 15 gm. and is slightly nodular. These vary from 5 to 10 mm. in diameter and are tan. They show a normal colloid sheen.

ADRENALS:

No abnormalities are noted.

PITUITARY:

Not remarkable.

SPLEEN:

The spleen weighs 100 gm. The capsule is wrinkled and is purple. On section the parenchyma is moderately firm and is dark red to purple mottled with grey. The malphigian corpuscles are easily visible.

LYMPH NODES:

Not remarkable.

BONES:

Samples are taken from the calvarium, rib, sternum, ilium and sacral vertebra. No gross abnormalities are noted. The marrow is dark red and abundant.

HEAD:

No abnormalities are noted in the scalp or calvarium.

The paranasal sinuses, mastoid air cells and middle ears are normal.

The cerebro-spinal fluid and meninges are not remarkable.

BRAIN:

The brain weighs 1400 gm. The hemispheres are symmetrical. The pia arachnoid shows slight congestion. The arteries at the base of the brain are essentially normal.

Frontal sections made 5 to 10 mm. apart reveal no gross abnormalities. The ventricular system is symmetrical bilaterally.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal slight fatty infiltration of the right ventricular myocardium. Some arteries and arterioles show slight intimal thickening. There is slight perivascular fibrosis of the myocardium. Brown granular pigment lies within the cytoplasm adajacent to the nuclei. Sections through the aorta shows slight atherosclerosis.

Lungs:

Sections reveal varying stages of bronchopneumonia. In addition, there is slight focal emphysema. Some arteries show intimal thickening. There is no fibrous obliteration of the interlobular fissures. The bronchioles contain fibrinopurulent exudate.

Liver:

Sections reveal slight fatty metamorphosis. A few lymphocytes are scattered about some of the periportal triads.

Pancreas:

Not remarkable.

Kidneys:

Not remarkable except for slight uneven fibrous thickening of the capsules. There is slight focal perivascular lymphocytic infiltration at the junction of the cortex and medulla.

Genital Tract:

The myometrium shows innumerable thick walled vessels. An endometrial polyp composed of loose edematous stroma and vascular spaces is present. Gland-like structures lined by endometrial-type epithelium are scattered about. There is no evidence of malignant change.

Sections through the ovaries reveal no significant abnormalities. The fallopian tubes are not remarkable.

Thyroid:

Sections reveal a nodular thyroid. There is no evidence of malignant change.

Adrenals:

Sections reveal depletion of the cortical lipid.

Pituitary:

Not remarkable.

Spleen:

Sections reveal some depletion of the white pulp. The sinusoids are moderatel distended. Arteries and arterioles, showing slight to moderate thickening and hyalinization, are moderately abundant.

Brain:

Sections reveal slight congestion and slight perivascular edema. No other abnormalities are noted.

Calvarium:

The periosteum is absent. The cortex and trabeculae are composed of dense bone. The latter are broadened. The remaining marrow spaces contain fat admixed with a few cells.

Sternum:

The periosteum is intact. Fat is sprinkled about. Some of the vessels show slight thickening. The cortex and trabeculae are composed of delicate mature bone. The marrow is not remarkable.

Vertebra:

The periosteum is intact. Thick-walled vessels are present. The cortex and trabeculae are composed of mature delicate bone. The marrow is not remarkable. The intervertebral disc is not remarkable.

Rib:

Sections reveal intact periosteum. The attached skeletal muscle is not histologically abnormal. The cortex and trabeculae are not remarkable. The marrow is normal.

CASE NO. 27

A-266-56

AGE: 79

DATE OF DEATH: 9-25-56

DATE OF AUTOPSY: 8:30 a.m., 9-26-56

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Robert V. Davis

CHIEF DIAGNOSIS:

1. Arteriosclerotic aneurism of the abdominal aorta with rupture and extensive retro-peritoneal hemorrhage.
2. Arterio- and arteriolosclerosis, moderate to marked, generalized.
3. Pyelonephritis, active, bilateral, slight to moderate.
4. Nodular thyroid.
5. Cardiac hypertrophy, 530 grams.

COMMENT:

The immediate cause of death in this case was due to the rupture of an arteriosclerotic aneurism lying in the midportion of the abdominal aorta. This resulted in extensive retro-peritoneal hemorrhage with death.

The pyelonephritis was bilateral and active, however, it was of little importance in the final demise.

The cardiac enlargement was primarily due to a left ventricular hypertrophy indicating some degree of long standing hypertension.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished elderly white woman who appears younger than the stated age. It measures 59 inches in length and weighs an estimated 80 pounds. The scalp is covered with grey-black hair. Foci of brownish discoloration are scattered about the skin of the forehead. Senile keratoses are scattered about the face. Embalming precludes examination of the eyes and nasopharynx. The nares and ear canals are not remarkable. The breasts are not remarkable. Superficial lymph nodes are not palpable. Bruises and needle puncture wounds are scattered about the anticubital fossa and wrists. Similar bruises and needle puncture wounds are present about the hips. Foci of reddish discoloration which do not blanch on pressure, are scattered about the wrists and the dorsal surfaces of both hands. The external genitalia are essentially normal. The hair distribution is that of a normal adult female. There are no obvious skeletal deformities. Exostoses are not palpable.

PRIMARY INCISION:

The usual Y-shaped incision is made revealing a 2.0 cm. layer of yellow-brown lobulated fat over the lower midline. The musculature is dark red, well developed and moist.

SEROUS CAVITIES:

The peritoneal space contains approximately 200 cc. of dark straw colored fluid. The appendix is present and is essentially normal. The right leaf of the diaphragm lies at the level of the 5th rib and the left leaf lies at the level of the 6th rib. The mesentery shows focal hemorrhage along the course of the arteries. Present in the midportion of the abdomen is a large mass measuring 15.0 x 12.0 cm. Visible through the posterior peritoneum is an extensive retro-peritoneal hemorrhage which results in the previously describec mass. The liver extends 5.0 cm. below the xiphoid process in the midline and lies beneath the costal cartilage in the right midclavicular line. The right kidney is normal to palpation. The left kidney cannot be palpated due to the extensive retro-peritoneal hemorrhage. The ureters are not dilated.

The pleural spaces contain each about 200 cc. of dark straw colored fluid. Adhesions are not present.

The pericardial space contains no excess of free fluid. The pericardium is normal. The heart is enlarged and slightly displaced to the left. The diameters in situ are as follows: greatest transverse diameter, 16.0 cm., transverse diameter at the base, 10.0 cm., base to apex 13.0 cm., and AP diameter, 8.0 cm.

HEART:

The heart weighs 530 grams. Sections through the myocardium reveal no gross abnormalities. The left ventricular myocardium averages 2.0 cm. in thickness and the right ventricular myocardium measures from 3.0 to 6.0 mm. in thickness. The right ventricular myocardium is thickest anteriorally and is thinnest posteriorly near the apex. The chambers are of normal size. The valves are grossly normal except for slight thickening of the leaflets of the mitral valve. There is no evidence of fusion. The chorade tendinea and papillary muscles are normal. The leaflets of the aortic valve show slight thickening. Fusion is absent. The circumferences of the valves at the rings are as follows: pulmonic, 7.0 cm., tricuspid, 10.5 cm., mitral, 9.0 cm. and aortic, 6.5 cm. The auricular appendages contain only post mortem clot. Sections through the coronary arteries reveal slight focal sclerosis. There are no areas of significant narrowing or occlusion. The great vessels show moderate atherosclerosis. The aorta shows marked sclerosis becoming more extensive and more severe as it is descended. Occupying a large portion of the abdominal aorta is a fusiform aneurism measuring 17.0 cm. in length by 8.0 cm. in diameter. The point of rupture lies in the left lateral wall of the mid-abdominal aorta. An estimated 1000 cc. of blood lies in the retro-peritoneal space. The hemorrhage dissects along the mesenteric artery, and also surrounds the left kidney. There is no evidence of mesenteric thrombosis or gangrene of the bowel. The aneurismal sac is largely thrombosed and in some areas the wall measures 4.0 cm. in thickenss. The sectional surfaces are laminated and grey to brown. In other areas the wall measures about 1.0 mm. in thickness. There is extensive focal calcification. At the bifurcation of the aorta the vessels are patent, however, the lumens are markedly narrowed.

LUNGS:

The right lung weighs 330 grams. The pleura is salmon pink to rod mottled with anthractoic pigment. There is normal crepitus throughout all lobes. On section the surfaces are salmon pink and moderately dry. The bronchi, bronchioles and vessels are not remarkable.

The left lung weighs 260 grams and is similar to the right with the exception of the left lower lobe where there is focal atelectais.

The trachea and bronchi are essentially normal.

GASTRO-INTESTINAL TRACT:

The esophagus and stomach are not remarkable. The latter contains a few cc. of undigested food and mucus. The mucosal and rugal patterns are normal. The small bowel contains bile stained chyme. The large bowel contains moderate quantities of gas and some brown fecal matter. There are no abnormalities of the wall. Lying in the retro-sigmoid are several diverticula measuring up to 1.0 cm. in diameter. There is no evidence of inflammation. The appendix is not remarkable.

LIVER:

The liver weighs 1070 grams. The surface is smooth, shiny and tan. On section the parenchyma cuts with increased resistance revealing a tan surface showing slight accentuation of the lobular pattern. The biliary radicles and portal vein are patent.

PANCREAS:

The pancreas weighs 110 grams and is essentially normal in shape, color and consistency. On section no abnormalities are noted.

GENITO-URINARY TRACT:

The right kidney weighs 110 grams. The capsule strips with slight difficulty revealing a coarsely granular surface. The elevations are grey to tan. The depressions are tan-red. On section the cortico-medullary line is partially obscure Where it can be identified it measures 7.0 mm. in thickenss and is tan and granular. The medulla is purple. There is an increased amount of peri-pelvic fat. The ureter is not remarkable. The calices and pelvis are normal.

The left kidney weighs 90 grams and is similar to but more severely diseased than the right.

The urinary bladder is not remarkable. It contains a few cc. of thick turbid grey liquid.

The uterus is of normal shape and measures 5.0 x 4.0 x 2.0 cm. On section the myometrium measures up to 1.0 cm. in thickness. A polyp measuring about 5.0 mm. in diameter lies within the endometrial cavity. The endometrium measures about 1.0 mm. in thickness and is grey to pale red.

Both ovaries show senile atrophy. The fallopian tubes are not remarkable.

SPLEEN:

The spleen weighs 100 grams. There is uneven fibrous thickening of the caps Some of the pearly grey plaques measure up to 2.0 mm. in thickness. On section t parenchyma shows moderate congestion and is moderately firm. It is red mottled w purple. The Malpighian corpuscles are visible.

LYMPH NODES:

Not remarkable.

BONE MARROW:

Samples taken from the sternum, 6th rib, vertebrae and iliac crest are pale red to yellow.

THYROID:

The thyroid weighs 30 grams and is grossly asymmetrical. Nodules measuring up to 1.5 cm. in diameter are scattered about both lobes. On section the largest nodule is red mottled with purple and grey. It is moderately soft and friable. Other nodules are tan and show a normal colloid sheen.

ADRENALS:

Not remarkable.

PITUITARY:

Not remarkable.

HEAD:

No abnormalities are noted in the scalp or calvarium. Over the frontal areas the calvarium measures up to 1.0 cm. in thickness. The inner surface is smooth and shiny. Exostoses are not identified.

The paranasal sinuses, mastoid air cells and middle ears are normal.

The meninges and cerebro-spinal fluid are not remarkable.

BRAIN:

The brain weighs 1130 grams. The hemispheres are symmetrical. The pia arachnoid shows slight thickening. The arteries at the base of the brain show slight focal thickening. There are no areas of significant narrowing or hemorrhage.

Sections through the cerebral hemispheres about 1.0 cm. apart reveal no gross abnormalities. The ventricles are symmetrical bilaterally.

Sections through the cerebellum and brain stem reveal no gross abnormalities.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal slight focal lymphocytic infiltration of the pericardium. An occasional vessel shows slight intimal thickening.

Aorta: (aneurism)

Sections through the wall of the aneurism reveal extensive atherosclerosis with liquefactive degeneration and necrosis. There is focal calcification within the media. There is extensive hemorrhage into the adventitia. The vasa vasorum show marked intimal thickening.

Lungs:

Sections reveal slight emphysema. Brown granular pigmented macrophages are scattered about some of the alveoli, most marked subjacent to the pleura. Some arteries and arterioles show slight intimal thickening. The bronchi and bronchioles are not remarkable. There is focal congestion and intraalveolar hemorrhage.

Liver:

Sections reveal slight accentuation of the peri-portal fibrous tissue. Here, there is slight lymphocytic infiltration. The sinusoids contain a few lymphocytes and neutrophils. In the central zones there is some degeneration and brown pigmentation of cord cells.

Gallbladder:

Not remarkable.

Kidneys:

Sections reveal irregular fibrous thickening of the capsule. Foci of atrophy of parenchymal structures are scattered about. These are most marked subjacent to the capsule. Here, there is moderate to marked lymphocytic infiltration. Glomeruli in varying stages of atrophy and fibrosis are moderately abundant. Some arteries and arterioles show slight intimal thickening and hyalinization. Some of the arteries near the pelvis show total thrombosis with organization and recanalization.

Uterus:

Sections reveal atrophy of the myometrium and endometrium.

Spleen:

Sections reveal marked uneven fibrous thickening of the capsule. There is congestion with focal interstitial hemorrhage with degeneration of the parenchyma. (infarct). This lesion lies subjacent to the capsule. Brown granular pigmented macrophages are abundant. Elsewhere, the parenchyma is not remarkable. The arteries and arterioles show intimal thickening and hyalinization. Neutrophils are lightly sprinkled about.

Thyroid:

Sections reveal a nodular thyroid.

Adrenals:

Sections reveal intimal thickening and hyalinization of the pericapsular arteries and arterioles.

Pituitary:

Not remarkable.

Brain:

Sections reveal intimal thickening of some arteries and arterioles. There is slight perivascular rarefaction of brain parenchyma. In some areas the choroid plexus shows focal calcification.

Calvarium:

The periosteum is partially intact. The cortex and trabeculae are composed of dense mature bone. The marrow is not abnormal.

Sternum:

The periosteum is intact. There is fatty infiltration in some areas. The cortex and trabeculae are composed of mature delicate bone. There is slight hyperplasia of the granulocytic cell series.

Vertebra:

The periosteum is intact. A few vessels show intimal thickening. The cortex and trabeculae are composed of mature delicate bone. There is some irregularity of the cortex with new bone formation adjacent to the intervertebral disc.

Rib:

The periosteum is intact. The attached skeletal muscle is not remarkable. A few vessels are thickened. The cortex and trabeculae are delicate. The marrow shows predominant cellular element. The granulocytic cell series is modarately hyper-plastic.

Iliac Crest:

The periosteum is intact. The skeletal muscle shows some fatty infiltration. The cortex and trabeculae are composed of mature delicate bone. The marrow is not remarkable.

CASE NO. 28:

AUTOPSY NUMBER: US-61

AGE: 66

DATE OF DEATH: 9-29-56

DATE OF AUTOPSY: 9-29-56, 2:00 p.m.

PROSECTOR: Richard A. Call, M. D.

ASSISTANTS: John Koense and Robert V, Davis

CHIEF DIAGNOSIS:

1. Arteriosclerotic aneurism of the abdominal aorta with rupture.
2. Retroperitoneal hemorrhage, 2,000 cc. secondary to 1. above.
3. Achondroplastic dwarf.
4. Occlusion of the right coronary artery, old, with myocardial infarction, old, healed.
5. Pulmonary silicosis, slight.
6. Emphysema with pulmonary fibrosis, moderate.
7. Silicosis of tracheo-bronchial lymph nodes.
8. Acute hepatitis, early, slight.

COMMENT:

The immediate cause of death in this case was the rupture of an arteriosclerot aneurism of the aorta with extensive retroperitoneal hemorrhage.

The achrondroplastic dwarfism was of great interest, but played no part in the terminal episode. The occlusion of the right coronary artery was old. The infarction was well-healed and resulted in some dilation of the ventricular chamber. The emphysema and associated pulmonary fibrosis undoubtedly placed an additional strain on the heart. The emphysema was probably secondary to the silicosis.

GENERAL DESCRIPTION:

This is the body of a well-developed, well-nourished dwarf, showing the characteristics of achondroplasia. It measures 57" in length and weighs an estimated 100 lbs. The scalp is covered with grey black hair, showing receding at the forehead. The irides are grey. The pupils are round and equal and measure 4 mm.in diameter. The ear canals and nares are not remarkable. The nasopharynx is essentially normal. The distal two-and-one-half phalanges of the 4th digit of the right hand are absent. The external genitalia are essentially normal. The hair distribution is that of a normal adult male. The legs are markedly bowed. There is an inguinal hernia on the left side. There are no additional bony defects.

PRIMARY INCISION

The usual Y-shaped incision reveals a 2 cm. layer of yellow lobulated fat in the midline. The musculature is dark red, well developed and moist.

SEROUS CAVITIES:

The peritoneal space contains about 200 cc. of liquid blood. The bowel and mesentery are displaced anteriorally due to extensive retroperitoneal hemorrhage.

In some areas, the hemorrhage dissects into the mesentery. The bowel is intact and shows no evidence of gangrene. The appendix is not remarkable. The liver extends 8 cm. beneath the costal cartilage in the right midclavicular line, and 5 cm. beneath the xyphoid process in the midline. The capsule is grey to tan. The kidneys are normal to palpation. The spleen is not remarkable. The ureters are not dilated. The right leaf of the diaphragm lies at the level of the 5th intercostal space and the left leaf lies at the level of the 5th rib.

The pleural spaces show innumerable fibrous adhesions, most marked on the left side. There is no excess of fluid present in either space.

The heart is markedly enlarged and displaced to the left. The entire heart lies left of the midline. The diameters in situ are as follows: greatest transverse diameter, 17 cm, transverse diameter at the base, 12 cm, base to apex, 13 cm, and AP diameter, 10 cm.

HEART:

The heart weighs 480 gm. There is marked distention of the left ventricle. Sections through the myocardium reveal extensive fibrous replacement of the posterior aspect of the left and right ventricles, adjacent to the septa. This area measures about 5 cm. in diameter and measures about 5 mm. in thickness. Sections elsewhere reveal no abnormalities. The auricles are of normal size. The right ventricle shows slight distention. The left ventricle is dilated an estimated 2 to 3 times normal size. The auricular appendages are not remarkable. The valves are grossly normal. The circumferences at the rings are as follows: pulmonic 7.5, tricuspid 14, mitral 11, and aortic 7.5 cm. The left ventricular septa are intact. Sections through the coronary arteries reveal an old occlusion, with organization and calcification of the right coronary artery. This begins about 1 cm. distal to the orifice and extends about 3 cm. distally. Sections elsewhere reveal moderate atherosclerosis

The aorta shows marked atherosclerosis becoming more extensive and severe as it is descended. The terminal 15 cm. shows a fusiform aneurysmal dilitation. It measures 8 x 15 cm. Lying anteriorally and to the left is a perforation, measuring 2.5 x 3.0 cm. At least 2,000 cc. of liquid and clotted blood lie in the retroperitoneal space, most marked on the left side. It surrounds the left kidney and extends cephalad as far as the diaphragm and caudad as far as the pelvis. The hemorrhage extends across the midline into the right retroperitoneal space. In some areas, the thickness of the aneurysmal wall is about 1 cm. Here there is beginning organization. In other areas the wall measures much less than 1 mm. in thickness. The aneurysm extends beyond the bifurcation. The iliac artery shows extensive atherosclerosis with ulceration and calcification. The great vessels in the neck show similar, but less severe, changes.

LUNGS:

The right lung weighs 470 gm. Fibrous adhesions are attached to the visceral pleura. The pleura is salmon-pink to red mottled with anthracotic pigment. There is marked increased crepitus throughout all the lobes. In some areas, emphysematous bullae measure up to 4 cm. in diameter. There is marked increased resistance to cutting. The surfaces are grey to salmon pink mottled with black. Some bronchi and bronchioles contain grey-yellow liquid. In the areas of the emphysema, the sectional surfaces are honeycombed. The air spaces are smooth, shiny, and grey to black. The pulmonary arteries show focal sclerosis, but are otherwise not abnormal.

The left lung weighs 450 gm. The pleura is pale red mottled with grey and black. Fibrous adhesions are abundant. There is marked emphysema of the apical portion of the lower lobe. Here, the bullae measure up to 7 cm. in diameter. There is marked increased crepitus throughout. On section, the bullae collapse, revealing smooth, shiny, pale red surfaces. The parenchyma is tougher than normal. Some bronchi and bronchioles contain yellow-grey liquid. The arteries show focal atherosclerosis.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable. The stomach contains copious quantities of undigested food. The duodenum contains bile stained chyme. The large bowel contains brown fecal matter. No abnormalities are noted in the wall.

LIVER:

The liver weighs 1150 gm. The capsule is tan, smooth and shiny. On section, the lobular pattern is slightly accentuated. Copious quantities of hemorrhagic liquid exude freely from the surfaces. The biliary radicles and portal vein are not remarkable.

The gallbladder contains a few cc. of thick, green bile. The wall and mucosa are not remarkable.

PANCREAS:

The pancreas weighs 200 grams. There is extensive hemorrhage into the peripancreatic fat with focal extension into the pancreatic parenchyma. On section, no additional abnormalities are noted except for fatty infiltration.

GENITO-URINARY:

The right kidney weighs 140 gm. The capsule strips with ease revealing a smooth, shiny, tan surface showing slight lobulation. On section, the cortico-medullary line is sharp. The cortex is tan and measures 9 mm. in thickness. The medulla is purple. The peripelvic fat is not remarkable. The calices, pelvis and ureter are normal.

The left kidney weighs 140 gm. and is similar to the right.

The urinary bladder is not remarkable. The prostate is slightly lobulated, but not otherwise abnormal.

The testes are not remarkable.

SPLEEN:

The spleen weighs 140 gm. The capsule is tan to purple and wrinkled. On section the parenchyma is pale red to purple. The malphigian corpuscles are faintly visible.

LYMPH NODES:

Not remarkable.

BONE MARROW:

Samples are removed from the vertebra, rib, sternum and iliac crest. Here, the marrow is dark red and abundant.

THYROID:

Not remarkable.

ADRENALS:

Not remarkable.

PITUITARY:

Not remarkable.

HEAD:

No abnormalities are noted in the scalp or calvarium.
The meninges and cerebro-spinal fluid are not remarkable.
The paranasal sinuses, mastoid air cells and middle ears are normal.

BRAIN:

The brain weighs 1200 gm. The hemispheres are symmetrical. The pia arachnoid is not remarkable. The convolutions are grossly normal. The arteries at the base of the brain show slight atherosclerosis, however, there are no areas of significant narrowing.

Sections made through the cerebral hemispheres reveal no abnormalities. The ventricles are bilaterally symmetrical. Sections through the cerebellum and brain stem reveal no additional abnormalities.

MICROSCOPIC DESCRIPTION

Heart:

Some sections reveal extensive fibrosis with replacement of the myocardium. Here, there is fatty infiltration. Most sections show slight perivascular fibrosis. There is moderate to marked intimal thickening and hyalinization of some of the arteries and arterioles. Lymphocytes are lightly sprinkled about the sub-pericardial areas. Brown granular pigment is abundant within many of the myocardial fibers.

Sections through the right coronary artery reveal total obliteration. There is marked intimal thickening with hyalinization and focal calcification. At some levels there is organization of the intralumenal clot with recanalization.

Lungs:

Sections reveal extensive emphysema, with marked fibrosis of the parenchyma. Broad bands of hyalinized connective tissue are abundant. In some areas spaces lined by respiratory epithelium are identified. Many of these are surrounded by dense hyalinized connective tissue. Most are filled with neutrophils. The adjacent tissue shows similar acute inflammatory cell infiltration. The interalvaolar septa are thickened, by fibrosis. Brown granular pigmented macrophages lie in many of the air spaces. The arteries and arterioles show slight to moderate intimal thickening and hyalinization. Incineration studies are positive for silicon dioxide.

CASE NO. 28

Aorta:

Sections through the aorta reveal extensive atherosclerosis with focal calcification and extensive ulceration. There is lymphocytic infiltration near the adventitia. Brown granular macrophages are abundant. There is slight fatty metamorphosis and parenchymateous degeneration. Arteries and arterioles showing slight to moderate intimal thickening and hyalinization are abundant.

Pancreas:

Sections reveal slight fatty infiltration and intimal thickening of some arteries and arterioles.

Gallbladder:

Not remarkable.

Kidneys:

Sections reveal hemorrhage into the perirenal fat. An occasional glomerulus shows fibrosis and hyalinization. There is an apparent increased cellularity of the glomeruli. Neutrophils are lightly sprinkled about the glomerular capillaries. The arteries and arterioles show slight intimal thickening.

Epididymus:

The ducts contain abundant cellular debris and innumberable spermatozoa.

Thyroid:

Sections reveal slight intimal thickening of the arteries and arterioles. The is some fibrous thickening of the interlobular septa.

Adrenals:

Sections reveal some depletion of the cortical lipid. The pericapsular arteries and arterioles show intimal thickening and hyalinization. The adjacent fat shows interstitial hemorrhage.

Pituitary:

Not remarkable.

Spleen:

Sections reveal depletion of the red and white pulp. The sinusoids are lined by hyperplastic cells. There is intimal thickening and hyalinization of the arteries and arterioles. The capsule shows uneven fibrous thickening.

Lymph Nodes:

The tracheo-bronchial nodes show extensive distortion and some destruction due to focal fibrosis. The central portion of the fibrous areas are eosinophilic and resemble "watered silk". Brown granular pigmented macrophages are abundant. Incineration studies are positive for silicon dioxide crystals.

Brain:

Sections reveal marked congestion and focal perivascular hemorrhage. In some areas there is perivascular and slight peri-nuclear edema. Some arteries and arterioles show intimal thickening.

Sternum:

Sections reveal intact periosteum containing several thickened vessels. Some show significant lumenal narrowing. The cortex and trabeculae are composed of mature delicate bone. The marrow shows some granulocytic cell hyperplasia.

Vertebra:

Sections reveal intact periosteum containing thickened vessels. The attached fibro-fatty tissue is not remarkable. The intervertebral disc is not significant. The cortex and trabeculae are composed of mature delicate bone. There is distinct hyperplasia of the granulocytic cell series.

Rib:

The periosteum is intact. The attached skeletal muscle is essentially normal. The cortex and trabeculae are normal. The marrow is similar to that previously described.

Iliac Crest:

Sections reveal partially intact periosteum. The attached skeletal muscle is not remarkable. The cortex and trabeculae are not remarkable. The marrow is simila to that previously described.

CASE NO. 30

AUTOPSY NUMBER: US-63

AGE: 58

DATE OF DEATH: Nobember 16, 1956

DATE OF AUTOPSY: 7:30 a.m. November 17, 1957

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: John Koense

CHIEF DIAGNOSIS:

1. Miliary tuberculosis, involving lungs, lymphnodes, liver, spleen, left adrenals and kidneys.
2. Emphysema, marked.
3. Right ventricular hypertrophy, 5 mm.
4. Nodular hyperplasia of the prostate.
5. Nodular thyroid.
6. Fibrous obliteration of the pericardial and pleural spaces, secondary to number 1 above.
7. Cholesterolosis of the gallbladder.

COMMENT:

The immediate cause of death in this case was undoubtedly the result of a combination of factors, the most important being the miliary tuberculosis, emphysema and associated right ventricular hypertrophy. The other diseases were certainly of great interest and added some to the final demise.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished, white man who appears the stated age. It measures 65" in length and weighs an estimated 125 pounds. The scalp is covered posteriorally by grey hair. There is marked receding of the hair line. There is edential partialis. The remaining teeth show dental caries. The pupils are round and equal and the ear canals are dry. The naso-pharynx is not remarkable. There is a bluish discoloration at the base of the neck on the right side, measuring about 5 cm. in diameter. The chest is "barrel-shaped". Abrasions measuring up to 2 cm. in diameter are present over the left upper arm. Innumerable varicose veins are scattered about the right axilla and the inner aspect of the right upper arm. A well-healed scar, measuring 3.5 x 1.5 cm. is present on the anterior surface of the right forearm. The external genitalia are not remarkable. The hair distribution is that of a normal adult male.

PRIMARY INCISION:

The usual Y-shaped incision reveals a 1 cm. layer of yellow, lobulated fat over the lower abdominal wall. The musculature is dark red, well developed and moist.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. The organs lie in normal relationship. The liver margins are rounded; however, they do not extend beneath the costal cartilages. Kidneys are normal to palpation and the ureters are not dilated. The right leaf of the diaphragm lies at the level of the 6th intercostal space and the left leaf lies at the level of the 6th rib.

The pleural spaces contain no excess of free fluid. The spaces are partially obliterated bilaterally by dense fibrous adhesions. The pericardial space is completely obliterated by fibrous adhesions.

HEART:

The heart weighs 320 gm. including the parietal pericardium. Sections through the myocardium reveal moderate congestion. The muscle shows some softening and is extremely flabby. The left ventricular myocardium measures 16 mm. in thickness. The chambers are essentially normal. The auricular appendages are empty. The interventricular and interauricular septa are intact. The valves are grossly normal. The circumferences at the rings are as follows: pulmonic 8, tricuspid 12, mitral 10, and aortic 8 cm. The coronary arteries show slight sclerosis. There are no significant areas of narrowing or occlusion. The aorta shows only slight focal sclerosis, becoming slightly more marked as it is descended.

LUNGS:

The right lung weighs 750 gm. Fibrous tags are attached to the visceral pleura. The surface is grey to black, due to intense anthracosis. There is decreased crepitus throughout all lobes. Innumerable nodular masses can be palpated throughout all lobes. These vary in size from 1 to 7 mm. On section, copious quantities of pale straw [illegible] colored frothy liquid exudes freely from the surfaces. The parenchyma is dark red to purple, mottled with anthracotic pigment. There is marked increased fibrosis throughout all lobes. One to 7 mm. sized grey to black nodules are scattered about the parenchyma of all lobes. The bronchi and bronchioles contain yellow frothy liquid. The arteries are not remarkable.

The left lung weighs 550 gm. Lying in the subapical portion of the upper lobe is a confluent mass measuring 4 cm. in diameter. Here, there is moderate emphysema. The bullae measure up to 2 cm. in diameter. Sections through the nodule reveal a watered silk appearance, varrying in color from grey to black. Elsewhere, the lung is similar to the right.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable. The stomach contains a small quantity of mucus and clear liquid. The rugal pattern is obscure. The mucosa shows autolysis. The small bowel contains bile stained chyme and the large bowel contains a small quantity of soft brown fecal matter. No abnormalities are noted in the bowel wall.

LIVER:

The liver weighs 1250 gm. The surface is smooth, shiny and tan purple. The margins are rounded. On section, copious quantities of hemorrhagic liquid exude freely from the surfaces. There is marked accentuation of the lobular pattern. The biliary radicles and portal vein are not remarkable.

The gallbladder contains green bile. The mucosa is green to tan, mottled with foci of yellow (cholesterolosis). The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 110 gm. and is normal in shape, color and consistency. On section, no abnormalities are noted.

GENITO-URINARY:

Each kidney weighs 100 gm. The capsules strip with ease revealing smooth, shiny tan surfaces. On section, the cortico-medullary lines are sharp. The cortices are tan and measure 8 mm. in thickness. The medulla is purple. The peripelvic fat is not remarkable. The calices, pelvis and ureters are normal.

The urinary bladder is collapsed. There is moderate hyperemia of the mucosa.

PROSTATE:

The prostate measures 4 x 3 x 3 cm. Sections reveal pale red surfaces. An occasional nodular mass is identified. The seminal vessels contain mucoid liquid.

SPLEEN:

The spleen weighs 250 gm. The capsule is smooth, shiny and purple. On section the parenchyma is soft and pultaceous, and is purple to red. Malpighian corpuscles are not easily visible grossly.

LYMPH NODES:

The tracheo-bronchial nodes measure up to 2 cm. in diameter. They are rock hard and are sectioned with difficulty. The surfaces are whorled and show a "watered silk" appearance, and are black mottled with grey. Foci of caseation necrosis are not identified grossly.

BONE MARROW:

Samples taken from the calvarium, sternum, rib, vertebrae and iliac crest are not remarkable.

THYROID:

The thyroid weighs 150 gm. and is markedly asymmetrical. The marked enlargement occurs on the left side. Here, the mass lies retrosternal and retrotracheal. The surfaces are tan to brown and the vascular markings are accentuated. On section, the surfaces are tan mottled with foci of yellow. Cystic foci, measuring up to 1 cm. in diameter are scattered about. A distinct area of fibrosis, measuring 1.5 cm. in diameter is also present. There is focal hemorrhagic discoloration. The capsule is obscured in some areas. Right lobe is normal in size, shape, color and consistency.

ADRENALS:

The right adrenal is not remarkable. The left adrenal weighs 30 gm. and measure 6 x 4 x 2 cm. On section, a firm grey, gritty tumor mass replaces most of the adrena It measures 4 x 3 x 2 cm. In some areas, there is focal yellowish discoloration. Cysts and hemorrhagic foci are not identified.

PITUITARY:

Not remarkable.

HEAD:

No abnormalities are noted in the scalp or calvarium.

The cerebro-spinal fluid and meninges are not remarkable.

The paranasal sinuses, mastoid air cells and middle ears are normal.

BRAIN:

The brain weighs 1440 gm. The hemispheres are symmetrical. The pia arachnoid is not remarkable. The cortex is grossly normal. The cerebellum and brain stem are not remarkable. A single section made through the frontal lobes reveal no gross abnormalities.

DESCRIPTION OF BRAIN FOLLOWING FIXATION:

The hemispheres are symmetrical. The pia arachnoid is not remarkable, except for some congestion. Sections through the cerebral hemispheres at 1 cm. intervals reveals no significant abnormalities. Sections through the cerebellum and brain stem reveal no abnormalities. The arteries at the base are not grossly abnormal.

MICROSCOPIC DESCRIPTION

Heart:

Sections through the myocardium reveal marked "lipochrome" pigmentation of the fibers. In some areas, there is atrophy of muscle fibers with beginning degeneration. Some arteries and arterioles show slight thickening. There is focal perivascular lymphocytic and neutrophilic infiltration. Fibro-fatty tags are attached to the visceral pericardium. There is slight focal fatty infiltration, most marked in the perivascular area.

Lungs:

Sections reveal marked emphysema. Some areas show beginning neutrophilic infiltration with macrophagic infiltration. There is moderate to marked edema. Perivascular lymphocytic infiltration is moderately prominent. There is extensive fibrosis with thickening of the interalveolar septa. In some areas, the fibrous process obliterates large portions of the pulmonary parenchyma. In some areas, the fibrous tissue is nodular and is composed of interlacing bundles of collagen. Brown granular pigmented macrophages are abundant in the outer zone and in the central core. The latter shows caseation necrosis with innumerable cholesterol slits. Elsewhere, an occasional tubercle is identified. Here, the central portion is composed of epithelioid giant cells surrounded by a layer of lymphocytes and plasma cells. An occasional multinucleated giant cell of the Langahan's type lies at the periphery. Thick walled vessels are abundant. Some show almost total lumena obliteration. In these areas, the normal histologic architecture is totally destroyed, due to the fibrosis. Ziehl-Neelson stains are positive for acid fast bacilli.

Tracheo-Bronchial Lymph Nodes:

Sections reveal almost total destruction of the normal histologic architecture due to dense fibrosis and macrophagic infiltration. The latter are heavily laden with brown to black granular pigment. Cholesterol slits are moderately abundant. In some areas, interlacing bundles of collagen are identified. In the central portion, there is focal caseation necrosis. Lymphocytes and plasma cells are lightly sprinkled about. Distinct tubercules are not identified. In some areas, multinucleated giant cells of the Langahan's type are identified. These are most prominent adjacent to the foci of caseation necrosis. There is focal calcification of the dense collagen.

CASE NO. 30.

Liver:

Sections reveal marked distortion and partial destruction of the architecture, due to innumerable tubercles. These are scattered uniformly throughout the sections. Some are composed of proliferating connective tissue, showing lymphocytic plasma cell and neutrophilic infiltrations. Other show central caseation necrosis and multinucleated giant cells of the Langahan's type. Some arteries and arterioles show slight to moderate intimal thickening, and hyalinization.

Pancreas:

Not remarkable except for moderate fatty infiltration.

Gallbladder:

Sections reveal autolysis.

Kidneys:

Sections reveal focal uneven thickening of the capsule. An occasional focus of interstitial fibrosis with lymphocytic infiltration are identified. Here, there is fibrous hyalinization of the glomeruli and tubules. Lying within the central portio of the area are a few multinucleated giant cells. Distinct tubercles are not identified. Some arteries and arterioles show intimal thickening and hyalinization. There is slight lymphocytic infiltration of peripelvic fibrofatty tissue.

Thyroid:

Sections reveal an adenomatoid hyperplasia with focal fibrosis, cystic degeneration and hemorrhage. There is no evidence of malignant change.

Adrenals:

The left adrenal shows extensive replacement by caseation tuberculosis. Only a small portion of the cortical cells and a few nests of medulla are identified.

Pituitary:

Not remarkable.

Prostate:

Sections show nodular hyperplasia.

Spleen:

Sections reveal congestion and depletion of the lymphoid element. Miliary tubercular nodules are scattered about the spleen. Some show caseation necrosis. All show characteristic multinucleated giant cells of the Langahan's type.

Brain:

Sections reveal some congestion and slight focal perivascular hemorrhage. The is slight to moderate perivascular and perineuronal edema, most prominent in the cortex. Some arteries show slight intimal thickening.

CASE NO. 30

Calvarium:

In some areas portions of the periosteum are present. The cortex and trabeculae are composed of intact mature cancellous bone. Marrow spaces are filled with fat.

Sternum:

Sections reveal intact periosteum. The cortex and trabeculae are intact. Marrow spaces contain abundant fat.

Vertebra:

The periosteum is intact. The cortex and trabeculae are not remarkable. The intervertebral disc shows slight basophilic degeneration. An occasional granulomatous lesion lies within the marrow. Some show central necrosis with an occasional multinucleated giant cell.

Rib:

The periosteum is intact. The attached skeletal muscle and soft tissues are not remarkable. Fibro-fatty tissue is moderately abundant. The cortex and trabeculae are delicate. The bone marrow is not remarkable, except for depletion of the cellular element.

Iliac Crest:

The periosteum is intact. The cortex and trabeculae are delicate. The marrow spaces are filled predominantly with fat.

CASE NO 31

AUTOSPY NUMBER: US-65

AGE: 55

DATE OF DEATH: 12-18-57

DATE OF AUTOPSY: 11:00 a.m., 12-18-56

PROSECTOR: Richard A. Call, M. D.

ASSISTANTS: Robert Davis and John Koense

CHIEF DIAGNOSIS:

1. Gangrene of the descending colon and the sigmoid, secondary to volvulus.
2. Bowel obstruction, secondary to No. 1 above.
3. Hemorrhage into the large bowel, moderate to marked, secondary to No. 1 above.
4. Rheumatoid spondylitis, marked (clinical diagnosis).

COMMENT:

The immediate cause of death in this case was the direct result of a volvulus which resulted in gangrene of a portion of the large bowel, with associated bowel obstruction, and intralumenal hemorrhage.

The rheumatoid spondylitis is of marked degree and of long duration; this, however, added little to the final demise.

GENERAL DESCRIPTION:

This is the body of a well-developed, poorly nourished white man who appears older than the stated age. It measures 63 " in length and weighs an estimated 75 pounds. There is marked kyphosis. There is marked flexion of the spine, extending from the cervical vertebrae to the coccyx. Thus, the chin reaches the knees. There is no evidence of scoliosis. Saber shin and exostoses are not identified grossly. The scalp is covered with brown hair. The pupils are round and equal. The nasopharynx contains a thin serous liquid and abundant mucus. The skin is not remarkable. The hair distribution is that of a normal adult male. The right testicle is moderately atrophic, the left is normal in size. The penis is uncircumsized. The lower one half of the lower extremities show scaling of the skin with purplish discoloration. There is diffuse muscular atrophy of both lower extremities. There is some edema of the right knee.

PRIMARY INCISION:

The usual Y-shaped incision reveals a thin layer of yellow lobulated fat. The latter measures less than 5 mm. in thickness. The musculature is dark red, moderately well developed and moist.

SEROUS CAVITIES:

The peritoneal space contains a small quantity of hemorrhagic liquid. A volvulus involving a redundant loop of descending colon, lies on the right side. The loop is rotated 360°. The involved bowel shows marked dark blue to black discoloration. The mesentery shows some interstitial hemorrhage. This loop is markedly distended and measures 12 cm. in circumference. Elsewhere, the bowel is not remarkable. The organs lie in normal relationship. The liver does not extend beneath the costal margin. The appendix is grossly normal. The right leaf of the diaphragm lies at the level of the 4th rib, and the left leaf lies at the level of the 4th intercostal space. The liver capsule is tan and the margins are acute. The kidneys and spleen are normal to palpation. The ureters are not dilated.

The pleural spaces contain no excess of free fluid. Innumberable fibrous adhesions are scattered about, most marked in the right apical area. The lungs are collapsed.

The heart is normal in contour and position. The pericardial space contains a few cc. of straw-colored fluid.

HEART:

The heart weighs 210 gm. The chambers are of normal size. Sections through the myocardium reveal no abnormalities. The interventricular and interauricular septa are intact. The auricular appendages are not remarkable. The valves are grossly normal. The circumferences at the rings are as follows: pulmonic, 6 cm; tricuspid, 9.5 cm; mitral, 7 cm; and aortic 6 cm. The left ventricular myocardium averages 10 mm. in thickness and the right ventricular myocardium averages 2 to 3 mm. in thickness. The coronary arteries show only slight sclerosis. There is no evidence of significant narrowing or occlusion.

AORTA:

Sections reveal only slight atherosclerosis in the abdominal portion.

LUNGS:

Both lungs consist of 2 lobes. Each lung weighs 230 gm. The pleura is salmor pink to red, mottled with a small quantity of anthracotic pigment. There is normal crepitus throughout all lobes. Lying in the apical area of the right upper lobe is an area of pleural thickening, measuring about 3 cm. in diameter. This area extends into the lung parenchyma by about 5 mm. Sections reveal a dry, pale red to red parenchyma. Some of the bronchioles contain thick, grey liquid. There is no evidenc of consolidation. Some bronchi and bronchioles contain a thick yellow-grey liquid. The pulmonary arteries and veins are not remarkable.

GASTRO-INTESTINAL:

The esophagus is not remarkable. About 1/3rd of the stomach lies within the thoracic cavity through a diaphragmatic hernia at the esophogeal hiatus. The stomach contains undigested food and mucus. The mucosal and rugal patterns are normal. The small bowel contains bile-stained chyme. The large bowel contains a small quantity of soft brown fecal matter. Lying within the infarcted decending colon and sigmoid is bright red blood, admixed with liquid fecal matter. There is extensive degeneration and necrosis of the bowel wall in this area. The wall can be perforated with ease. Spontaneous perforations are not identified grossly. The wall measures less than 1 mm.

LIVER:

The liver weighs 750 gm. The capsule is smooth, shiny and is tan. On section, the parenchyma bulges slightly beyond the capsule. There is slight accentuation of the lobular pattern. Copious quantities of hemorrhagic liquid exude freely from the surfaces. The biliary radicles and portal vein are not remarkable.

The gall bladder contains a few cc. of green bile. The mucosa is normal. The common and cystic duct are patent.

PANCREAS:

The pancreas weighs 60 gm. and is normal in shape, color and consistency.

GENITO-URINARY:

Each kidney weighs 85 gm. The capsules strip with ease revealing smooth, shiny, tan surfaces. On section, the cortico-medullary lines are sharp. The cortices average 7 to 8 mm. in thickness and are tan. The medulla is purple. The peripelvic fibro-fatty tissue is not remarkable. The calices, pelves and ureters are not abnormal.

The urinary bladder is not remarkable.

The prostate measures 3.5 cm. in diameter and shows no gross abnormalities.

SPLEEN:

The spleen weighs 50 gm. The capsule is pale tan. On section, the surfaces are pale tan. No gross abnormalities are noted.

LYMPH NODES:

Not remarkable.

BONE MARROW:

The sternal, rib, vertebral and iliac crest marrow is dark red and abundant.

THYROID:

Normal in size, shape, color and consistency.

ADRENALS:

Not remarkable.

PITUITARY:

Not remarkable.

HEAD:

No abnormalities are noted in the scalp or calvarium.

The meninges and cerebro-spinal fluid are normal.

The middle ears and mastoid air cells and paranasal sinuses are essentially normal.

BRAIN:

The brain weighs 1320 gm. The pia arachnoid is not remarkable, except for congestion. The cerebral hemispheres are symmetrical. The cerebellum and brain stem are not abnormal. There is slight to moderate atherosclerosis of the basolar arteries. Further description to follow fixation.

DESCRIPTION OF BRAIN FOLLOWING FIXATION:

The cerebral hemispheres are symmetrical. The pia arachnoid is essentially normal. Frontal sections made through the cerebral hemispheres at 1 cm. intervals, reveal no significant abnormalities. Sections through the cerebellum and brain stem are essentially normal.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal slight fatty infiltration, particularly in the perivascular areas. Some arteries and arterioles show slight to moderate intimal thickening with significant lumenal narrowing. Most myocardial fibers show perinuclear deposition of brown granular pigment. An occasional foci of interstitial fibrosis with fibrous replacement of adjacent muscle are scattered about. These are most prominent in the interventricular septa. There is slight focal perivascular lymphocytic infiltration.

Lungs:

Sections reveal a few lymphocytes scattered about the sinusoids. There is deep brown pigmentation of the cord cells, most marked near the central veins. A few lymphocytes are scattered about the periportal connective tissue. Arteries and arterioles show slight to moderate intimal thickening.

Pancreas:

Sections reveal slight interstitial fatty infiltration. The Islet tissue is not remarkable.

Bowel:

Sections through the colon reveal extensive degeneration and necrosis with loss of the normal histologic pattern. Here, only ghosts of cells remain. Elsewhere, the bowel shows congestion with beginning degeneration and necrosis. Neutrophils are sprinkled about all layers. The mucosa is largely absent. Some vessels contain fibrinocellular clots.

Spleen:

Sections reveal intimal thickening and hyalinization of arteries and arteri A few neutrophils are sprinkled about the sinusoids. There is some depletion of the lymphoid element.

Kidneys:

There is some uneven thickening of the capsule. Foci of fibrosis are scattered about the cortex. Here, there is slight lymphocytic infiltration. A few glomeruli, showing atrophy, fibrosis and hyalinization, are scattered about. In many tubules, there are hyalin-like casts. Some arteries and arterioles show slight to moderate intimal thickening and hyalinization.

Pituitary:

Not remarkable.

Thyroid:

Not remarkable.

Adrenals:

Sections reveal slight depletion of the cortical lipid. Some pericapsular arteries and arterioles show intimal thickening with hyalinization.

Brain:

Sections reveal perivascular and perineuronal edema. In some areas, there is perivascular rarifaction of brain parenchyma. Some arteries and arterioles show slight to marked intimal thickening. In some areas, the lumen shows significant lumenal narrowing.

Sternum:

Sections reveal an intact periosteum. A few thickened vessels are scattered about. The cortex and trabeculae are composed of delicate mature bone. The marrow is not remarkable.

Rib:

Sections reveal a partially intact periosteum. The attached skeletal muscle and fibro-fatty tissues are not remarkable. The vessels are normal. The cortex and trabeculae are normal. The bone marrow is not remarkable.

Iliac Crest:

The periosteum is intact. The attached skeletal muscles are not remarkable. The cortex and trabeculae are delicate. he bone marrow is similar to that previously described.

CASE NO. 32

A-274-56

AGE: 49

DATE OF DEATH: December 28, 1956

DATE OF AUTOPSY: 9:00 am., December 28, 1956

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Mr. Robert V. Davis

CHIEF DIAGNOSIS:

1. Fatty degeneration of the liver, marked, 4 plus.
2. Parenchymatous degeneration of the liver, marked.
3. Myocardial degeneration, moderate.
4. Fibrinous pericarditis, marked.
5. Scarring of the brain, extensive, left, old.
6. Rheumatic type heart disease, mitral stenosis, moderate.
7. Focal fibrosis of the lung (organizing pneumonia?)
8. Adrenal hemorrhage, extensive, left.
9. Ascites, 1000 cc.
10. Hydrothorax, bilateral, 100 cc. each.
11. Focal fibrino-purulent peritonitis.
12. Emphysema, slight.
13. Nodular thyroid.
14. Cholelithiasis.
15. Cholesterolosis.
16. Leiomyoma uteri
17. Ulcer of the stomach.

COMMENT:

The immediate cause of death was due to a combination of factors. The most important terminal episode is most difficult to ascertain in view of the multiplicity of pathologic conditions. The marked biochemical imbalance present before death cannot be determined histologically. Its importance can only be speculative.

The extensive fatty degeneration and parenchymatous degeneration of the liver is compatible with liver failure. The myocardial degeneration while only moderate, was certainly extensive and added to the final demise. The fibrinous pericarditis is not explained histologically. The focal fibrino-purulent peritonitis, was secondary to previous surgery (gastric resection).

The extensive scarring of the white matter of the left hemisphere of the brain was secondary to head trauma which occured many years prior to death. Following the accident, the patient was paralyzed and aphasic.

GENERAL DESCRIPTION:

This is the body of a well developed, obese white female who appears older than the stated age. The scalp is covered by wavy brown hair. Embalming precludes examination of the eyes and nasopharynx. "Embalmer's incisions" lie at the base of the neck bilaterally. The ear canals are dry, the nares are not remarkable. The breasts are pendulous. There is moderate subcutaneous pitting edema, most marked over the lower extremities. Ecchymoses are scattered about the left foot, both arms, and both hands. A "cut down" lies on the dorsal aspect of the right foot. Innumerable linea Striae lie on the anterior abdominal wall. A healing incisional wound measuring 23.0 cm. in length lies in the upper midline. The wound is gapping in the midportion and in the lower 5.0 cm. The hair distribution is that of a normal adult female. The external genitalia are essentially normal.

PRIMARY INCISION:

The usual Y-shaped incision reveals a 6.0 cm. layer of yellow-lobulated fat. The musculature is well developed, dark red and moist.

SEROUS CAVITIES:

The peritoneal space contains an estimated 1000 cc. of dark straw colored fluid. The omentum lies in the upper abdomen. There is slight distention of the small bowel and colon. The small bowel is adherent one loop to another by fibrinous adhesions. In some areas there is beginning organization. Here, the omentum is also adherent to the incisional wound in the anterior abdominal wall. A small quantity of purulent exudate can be identified in the wound in the lower aspect. Lying in about the midportion of the small bowel are two groups of black silk suture. (repair of surgical perforations). Here, a portion of a Miller-Abbott tube lies within the lumen of the bowel. There are no areas of obstruction or narrowing identified. The mesentery and omentum are heavily laden with fat. Dense fibrous adhesions lie between the transverse colon and the stomach. A portion of the stomach has been removed surgically. The suture lines are intact and are well healed. The liver capsule is smooth, shiny and pale tan. The margins are markedly rounded and extend about 2.0 cm. beneath the rib margin. The kidneys are normal to palpation. The ureters are not dilated. The spleen is normal to palpation. The right leaf of the diaphragm lies at the level of the third intercostal space and the left leaf lies at the level of the 4th intercostal space.

Each pleural space contains about 100 cc. of dark straw colored fluid. No adhesions are noted.

The pericardial space is obliterated by dense fibrinous adhesions. The heart is normal in contour and position.

HEART:

The heart weighs 340 grams. Sections through the myocardium reveal no abnormalities. The left ventricular myocardium averages 16.0 mm. in thickness and the right ventricular myocardium averages 3.0 to 4.0 mm. in thickness. There is moderate distention (two times) of the left auricle. The other chambers are normal in size. The interventricular and interauricular septa are intact. The pulmonic, tricuspid and aortic valves are essentially normal. There is distinct fibrous fusion of the cusps of the mitral valve resulting in a "fish mouth" deformity. The leaflets measure up to 5.0 mm. in thickness. There is no evidence of calcification. The chordae tendinae and papillary muscles show fibrous thickening with some shortening. The circumferences of the valves at the rings are as follows: pulmonic, 7.0 ; tricuspid, 12.0; mitral, 9.0 and aortic, 7.0 cm. Sections through the coronary arteries reveal slight atherosclerosis. There are no significant areas of narrowing or occlusion.

The aorta shows only slight atherosclerosis becoming more marked as it is descended. The great vessels show similar changes.

LUNGS:

The right lung weighs 420 grams. The pleura is smooth, shiny and pale to dark red mottled with slightly anthracotic pigment. There is decreased crepitus througho the lower lobe. The upper and middle lobes show normal crepitus. On section the parenchyma of the upper and middle lobes is pale red mottled with anthracotic pigment. The lower lobe is moderately dry and dark red mottled with irregular foci of purple. Distinct consolidation is not identified grossly. The bronchi and bronchioles are not remarkable. The pulmonary arteries and veins are normal.

The left lung weighs 480 grams and is similar to the right. However, the changes in the left lower lobe are more marked.

The trachea and bronchi contain a small quantity of thick tenacious bile stained mucus. Irregular foci of hemorrhage are scattered about. In some areas the mucosa appears necrotic (gastric tube?).

GASTRO-INTESTINAL TRACT:

The esophagus shows marked congestion. This is most prominent near the gastro-esophageal junction.

The stomach contains a small quantity of mucus. The mucosal and rugal patterns are essentially normal. Lying within the fundus is an area of ulceration measuring 7.0 mm. in diameter. It is covered by a dark purple to brown crust. The suture lines are intact (gastrectomy). The orifice is patent. The small bowel contains a small quantity of bile stained mucus. The large bowel contains a small quantity of brown bile stained liquid mucus. There are no abnormalities except for congestion and focal petechial hemorrhage. There is no evidence of hemorrhage into the bowel lumen.

LIVER:

The liver weighs 2500 grams. The capsule is smooth, shiny and pale tan. On section the parenchyma bulges markedly beyond the capsule. The lobular pattern is not prominent. There is marked softening of the entire liver. The parenchyma is so friable that movement of the liver itself is difficult without lacerating the parenchyma. The biliary radicles are not abnormal. The portal vein is patent. The common and cystic ducts are patent. The gallbladder contains a few cc. of bile and a solitary barrel shaped calculus measuring 1.0 cm. in diameter. The mucosa is green flaked with yellow.

PANCREAS:

The pancreas weighs 210 grams. It is normal in shape and consistency. On section no abnormalities are noted except for fatty infiltration.

KIDNEYS:

The right kidney weighs 180 grams. The capsule strips with ease revealing a finely granular surface. It is pale red to tan and bears an occasional inclusion cyst. On section the cortico-medullary line is sharp. The cortex is tan and averages 5.0 to 6.0 mm. in thickness and is finely granular. The medulla is purple. The peri-pelvic fat is not remarkable. The calices, pelvis and ureter are normal.

The left kidney weighs 170 grams and is similar to the right.

The urinary bladder is not remarkable.

The uterus is markedly asymmetrical and measures 8.0 x 7.0 x 4.0 cm. On section innumerable hard grey whorled nodules occupy much of the myometrium. The endometrium is grey and atrophic.

The fallopian tubes and ovaries are not remarkable.

THYROID:

The thyroid is asymmetrical due to innumerable nodules varying in size from 2.0 mm. to 2.0 cm. The parenchyma is tan to purple and shows a normal colloid sheen. The nodules show a similar colloid sheen. Most nodules show encapsulation, focal hemorrhage and focal fibrosis. The parathyroid glands are not remarkable.

ADRENALS:

The left adrenal gland shows brown discoloration, mottled with orange.

The right adrenal is not remarkable.

PITUITARY:

Not remarkable.

SPLEEN:

The spleen weighs 100 grams. The capsule is slightly wrinkled and is purple mottled with grey fibrous plaques. On section, the parenchyma is moderately dry and is pale purple. The Malphighian corpuscles are easily visible grossly.

LYMPH NODES:

Not remarkable.

BONE MARROW:

Dark red and abundant. Samples are taken from the rib and calvarium.

HEAD:

No abnormalities are noted in the scalp or calvarium. The meninges and cerebro-spinal fluid are normal.

The paranasal sinuses, mastoid air cells and middle ears are normal.

BRAIN:

The brain weighs 1150 grams. The cerebro-spinal fluid is xanthochromic. The cerebral hemispheres are symmetrical. There is slight atrophy of the cortex. This is most marked in the left hemisphere. The cerebellum and brain stem are not remarkable grossly. The arteries at the base are essentially normal. Further description to follow fixation.

GROSS DESCRIPTION OF BRAIN FOLLOWING FIXATION:

The external surface shows an obvious decrease in size of the left hemisphere. The cortical convolutions show no gross abnormalities. On section there is marked condensation of the white matter. The grey matter is of usual thickness. The ventricular system is symmetrical. The basal ganglia on the left show a slight decrease in size. No specific lesions are identified. The condensation of the white matter extends from the frontal lobe to the occipital lobe. It is most marked in the occipital area. Sections through the brain stem and cerebellum reveal no gross abnormalities.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal several fragments of myocardium showing unusual prominence of the myocardial nuclei. Some show unusual enlargement with increased pigmentation. An occasional nest of lymphocytes and neutrophils is present. Inflammatory cells are lightly sprinkled about other areas. This results in an apparent increased cellularity. Some vessels are unusually prominent. There is slight focal intimal thickening. An occasional focus of interstitial fibrosis if identified. Many of the myocardial fibers contain brown granular pigment. In some areas there is granular degeneration of the fibers with beginning loss of the cross striations.

Lungs:

Sections reveal congestion and focal hemorrhage with slight to moderate emphysema, most marked subjacent to the pleura. Thick walled vessels are present, but not prominent. The most significant alteration exists in the areas of marked congestion and interalveolar hemorrhage. Here, there is beginning organization with marked thickening of the intra-alveolar septa. This results in distinct obliteratio of the architecture. An occasional bronchus shows superficial ulceration of the epithelium with neutrophilic infiltration of the wall. The bronchioles show similar but less marked change.

Liver:

Sections reveal marked (4+) fatty degeneration of the liver. This is diffuse and involves all zones, thus largely destroying the histologic architecture. The remaining cord cells show parenchymatous degeneration. There is distinct regeneration of liver cells in many areas. Here, double and tripple nuclei are identified. The cells are irregular, large and hyperchromatic. Many show clumped chromatin. Lymphocytes and a few neutrophils are lightly sprinkled about the peri-portal connective tissue. The latter is not accentuated. Inspissated bile fills many of the biliary canaliculae. Some of the arteries and arterioles show intimal thickening with hyalinization.

Pancreas:

Sections reveal slight lymphocytic infiltration of the interlobular septa. The vessels are not remarkable. Ducts are not abnormal. The islet tissue is essentially normal.

Stomach:

Sections reveal lymphocytic and plasma cell infiltration. In one area there is necrosis of the epithelium with ulceration. The base is covered with nondescript necrotic debris. A zone of lymphocytic and neutrophilic infiltration lies subjacent to the ulcer base. Here, there is marked interstitial hemorrhage with increased congestion. The musculature is not remarkable.

Bowel:

Sections reveal some congestion and hemorrhage with marked lymphocytic and plasma cell infiltration.

Kidneys:

Sections reveal some uneven fibrous thickening of the capsule. Here, a few foci of fibrosis are scattered about. Lymphocytes are lightly sprinkled in and about the fibrous lesion. The tubules and adjacent structures show atrophy with fibrous replacement. Elsewhere, lymphocytes are lightly sprinkled about the cortex. Some areteries and arterioles show slight intimal thickening. There is moderate congestion, most marked in the medulla. The peri-pelvic fibro-fatty tissue shows focal lymphocytic infiltration. No additional significant abnormalities are noted.

Uterus:

Sections through the uterus reveal circumscribed tumor masses composed of interlacing bundles of fibromuscular tissue.

Pituitary:

Not remarkable.

Adrenals:

The left adrenal gland shows extensive interstitial hemorrhage with necrosis of the medulla and cortex at some levels. Elsewhere, there is extensive congestion and interstitial hemorrhage. This is not diffuse, however, an estimated 90% of the gland is destroyed at one level.

Sections of the right adrenal show no significant abnormalities except for some depletion of the cortical lipid.

Thyroid:

Sections reveal nodular thyroid, showing cyst formation and focal fibrosis. There is no evidence of malignant change.

Spleen:

Sections reveal moderate congestion. Neutrophils are lightly sprinkled about the sinusoids. The arteries and arterioles show moderate intimal thickening and hyalinization.

Brain:

The most significant alteration is the extensive destruction and replacement of the white matter, on the left side by glial tissue. Here, very little of the histologic architecture remains. The adjacent granular cell layers of cortex show some disorganization with loss of cellularity. The basal ganglia show a similar disorganization with some loss of nuclei. Some sections show uneven fibrous thickening of the pia arachnoid. The vessels show slight to moderate thickening. There is focal congestion with perivascular hemorrhage and some edema.

CASE NO. 32

Vertebra:

The periosteum is intact. The cortex and trabeculae are composed of mature bone. The marrow is not remarkable.

Rib:

Sections reveal intact periosteum. Adjacent skeletal muscle shows no significant abnormalities. The cortex and trabeculae are not remarkable. Bone marrow is normal.

CASE NO: 33

A-276-57

AGE: 73

DATE OF DEATH: 10:30 a.m. 1-9-57

DATE OF AUTOPSY: 8:30 a.m. 1-10-57

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Mr. Robert V. Davis.

CHIEF DIAGNOSIS:

1. Dissecting aneurism of the aorta with rupture into the left pleural space.
2. Cystic medial necrosis of the aorta, marked.
3. Arterio- and arteriolosclerosis, generalized, marked.
4. Hemothorax, left, 2000 cc., secondary to No. 1 above.
5. Atelectasis of the left lung, marked, secondary to No. 4 above.
6. Right ventricular hypertrophy.
7. Aortic thrombosis, incomplete.
8. Diverticulosis coli.
9. Nodular prostate.

COMMENT:

The immediate cause of death in this case was directly due to the rupture of the dissecting aneurism into the left pleural space. This resulted in a sudden 2000 cc. blood loss, which in turn, resulted in atelectasis of the left lung with a shift of the mediastinum to the right. The dissecting aneurism was undoubtedly due to the extensive cystic medial necrosis of the aorta. The aneurism and hemorrhage into the adjacent interstitial tissue probably resulted in some compression of the vena cava.

According to history, the initial rupture with beginning of the dissecting aneurism occurred about 10 days prior to death. According to the literature, the average length of life following the initial rupture is 17.5 days.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished elderly white man which appears the stated age. The posterior portion of the scalp is covered with straight white hair. Senile keratoses are scattered about the scalp and trunk. The body measures 65 inches and weighs an estimated 160 pounds. The nares and ear canals are not remarkable. Embalming precludes examination of the eyes and nasopharynx. An embalmer's incision lies at the base of the neck on the right side. A verruca lies on the index finger of the right hand and a similar lesion lies on the thumb of the left hand. The distal phalanx of the fifth digit of the left hand is absent A well healed scar lies between the fourth and fifth digits of the left hand. The hair distribution is that of a normal adult male. A 15 cm. sized hydrocele lies in the right scrotum. The penis is uncircumsized. Otherwise, the external genitalia are not remarkable. The soles of the feet show thick callouses and are discolored brown to black. There are no bony abnormalities.

PRIMARY INCISION:

The usual Y-shaped incision reveals a 5.0 cm. layer of yellow lobulated fat. The musculature is dark red, well developed and moist.

SEROUS CAVITIES:

The peritoneal space contains a few cc. of straw colored fluid which is streaked with red. (embalming fluid). The organs lie in normal relationship. There is moderate gaseous distention of the stomach. The appendix is not remarkable. The spleen and kidneys are normal to palpation. The ureters are not dilated. The liver is tan. The liver capsule is tan and smooth and shiny. The margins do not extend beneath the costal margin. The right leaf of the diaphragm lies at the level of the 6th intercostal space and the left leaf of the diaphragm bulges downward into the abdominal cavity.

A small amount of embalming fluid lies in the right pleural space. A few fibrous adhesions lie between the apical portion of the upper lobe and the lateral wall. Similar adhesions are present in the left space. An estimated 500 cc. of orange embalming fluid lies in the left pleural space.

Also present in the left pleural space are 2000 cc. of dark red blood clot. Lying in the lateral wall of the aorta at the level of the midportion of the hilus of the lung is a 1.0 cm. laceration.

The pericardial space contains a few cc. of yellow straw colored fluid. There is extensive interstitial hemorrhage of the parietal pericardium at the base. This hemorrhage extends around the great vessels. It does not involve the visceral pericardium.

HEART:

The heart weighs 350 grams. The visceral pericardium is not remarkable. The heart is normal in shape. Sections through the myocardium reveal no abnormalities. The left ventricular myocardium averages 1.8 cm. in thickness and the right ventricular myocardium averages 5.0 mm. in thickness. The chambers are of normal size. The auricular appendages are not remarkable. The interventricular and interauricular septa are intact. The valves are grossly normal. The circumferences of the valves at the rings are as follows: pulmonic, 7.0 cm., tricuspid, 12.5 cm., mitral, 9.0 cm and aortic 7.5 cm. Sections through the coronary arteries reveal extensive atherosclerosis, most marked in the proximal 2.0 cm. Here, the lumen shows almost total obliteration. Only a pin point lumen remains in both the right and left vessels. Elsewhere, there is moderate atherosclerosis. No areas of occlusion are identified. Distal to the narrowing in the right coronary artery there is a zone of dilation. Here, the lumen measures 6.0 mm. in diameter.

AORTA:

There is moderate to marked antherosclerosis becoming more marked as it is descended. There is no distinct aneurismal dilation of the true aorta. Mural thrombi are densely adherent to the wall. One lies 7.0 cm. distal to the arch and measures about 3.0 cm. in its greatest diameter. Lying in the midportion of the descending aorta at the level of the diaphragm is an organizing thrombus which almost totally occludes the lumen. It is laminated and tan to brown and measures 7.0 cm. in its greatest diameter. It obstructs the lumen an estimated 80%. There is far advanced atherosclerosis of the great vessels. Lying at the bifurcation of the aorta there is extensive calcification which extends into the iliac arteries. There is no evidence of thrombosis or total occlusion.

The most significant alteration within the aorta is an irregular jagged laceration measuring 3.0 x 1.0 cm. in diameter which lies in the postero-lateral wall on the right side, 5.0 cm. distal to the aortic arch. The defect extends partially through the wall. A dissecting aneurism measuring 4.0 cm. in diameter extends from the midabdominal aorta inferiorly to the base of the heart superiorly. The inner lining is smooth, shiny and tan to brown. Post-mortem blood clot and embalming fluid lie within this channel. It lies primarily anterior to the true aorta, however, there is dissection almost entirely surrounding the aorta and great vessels. A perforation through the wall of the aneurism extends into the left pleural cavity. The defect measures up to 1.0 cm. in diameter and lies just opposite to the primary laceration.

LUNGS:

There is extensive interstitial hemorrhage in the soft tissues about the hilus of both lungs. The right lung weighs 880 grams. The pleura is smooth, shiny and tan to purple. There is moderate decreased crepitus throughout all lobes. On section copious quantities of hemorrhagic liquid exudes freely from the parenchyma. The pulmonary arteries show slight sclerosis. The bronchi and bronchioles contain a moderate amount of mucoid liquid.

The left lung weighs 350 grams and shows marked atelectasis throughout both lobes. The surfaces are grey mottled with anthracotic pigment. Crepitus is absent. On section the surfaces are dry and grey to pale red. No abnormalities are noted in the bronchi or bronchioles. The pulmonary artery shows atherosclerosis.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable. The stomach is distended by gas and undigested food. The rugal and mucosal patterns are normal. The small bowel contains bile stained chyme. The large bowel contains brown formed fecal matter. Innumerable diverticula are scattered about the recto-sigmoid. These measure up to about 1.5 cm. in diameter and contain brown fecal matter.

LIVER:

The liver weighs 1250 grams. The surface is smooth, shiny and tan to brown. On section the normal lobular pattern is present. The biliary radicles are not remarkable. The portal vein is patent. The gallbladder contains a few cc. of green bile. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 150 grams. On section the parenchyma is pale red and tan and shows a normal lobular pattern. No gross abnormalities are noted.

GENITO-URINARY TRACT:

The right kidney weighs 140 grams and the capsule strips with slight difficulty, revealing a finely granular pale surface. On section the cortico-medullary line is sharp. The cortex is pale grey-tan and measures 9.0 mm. in thickenss. The medulla is pale purple. The peri-pelvic fat is not remarkable. The calices, pelvis, and ureter are normal.

The left kidney weighs 160 grams and is similar to the right.

The urinary bladder is not remarkable.

The prostate measures 4.0 cm. in its greatest diameter and on section contains a few hard nodular masses which project above the adjacent tissue. The seminal vesicles contain grey-tan mucoid liquid.

A hydrocele sac measuring 15.0 cm. in diameter and containing pale tan fluid lies in the right scrotum. No additional abnormalities are noted.

SPLEEN:

The spleen weighs 130 grams. The capsule is purple mottled with innumerable grey plaques measuring up to 1.0 cm. in diameter. These project above the adjacent tissue by about 1.0 mm. On section the surface is dark red mottled with grey. The parenchyma is soft and pultaceous. Many of the capsular plaques measure up to 1.0 mm. in thickness.

LYMPH NODES:

Not remarkable.

BONE MARROW:

The sternal, rib, vertebral and iliac crest marrow are red and abundant. No abnormalities are noted in the bone.

THYROID:

Normal in size, shape, color, and consistency.

ADRENALS:

Not remarkable.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal moderate fatty infiltration of the myocardium. This is most marked in the right ventricle. Arteries and arterioles showing slight to moderate intimal thickening and hyalinization are scattered about. Nests of lymphocytes are sprinkled about the pericardium. Brown granular pigment lies adjacent to the nuclei in most of the myocardial fibers. In some areas there is beginning granular degeneration. Some fibers show some loss of cross striations.

Aorta:

Sections reveal moderate atherosclerosis and an organizing mural thrombus. The most significant changes are those of cystic medial necrosis. The dissecting aneurism extends through the media splitting the aorta into two portions. The vasa vasorum shows intimal thickening and hyalinization. Lymphocytes are lightly sprinkled about the vasa vasorum and in some areas are identified within the muscularis. There is extensive hemorrhage into the wall of the aorta particularly the outer portion. Blood clot lies within the aneurism at some levels.

Lungs:

Sections reveal extensive atelectasis. There is slight to moderate anthracosis with focal emphysema. The pigment is most marked subjacent to the pleura. Arteries and arterioles showing moderate intimal thickening and hyalinization are abundant. Some vessels show almost total lumenal obliteration.

Liver:

There is slight accentuation of the periportal fibrous tissue. Lymphocytes ar lightly sprinkled about. The most marked alteration is the extensive intimal thick ing and hyalinization of the arteries and arterioles. Some show almost total lumen obliteration.

Pancreas:

Sections reveal far advanced post mortem autolysis. Arteries and arterioles showing moderate to marked intimal thickening and hyalinization are identified.

Bowel:

Sections through the colon reveal diverticula surrounded by smooth muscle. Th lumina contain non-descript fecal debris. Arteries and arterioles showing moderate intimal thickening and hyalinization are identified.

Kidneys:

Sections reveal slight uneven thickening of the renal capsule. Irregular foci of parenchyma atrophy are present. These are most marked just subjacent to the capsule. Here, there is slight lymphocytic infiltration. Arteries and arterioles showing slight to marked thickening are identified. A few hyalinized glomeruli are sprinkled about. Some tubules contain hyaline-like casts.

Prostate:

Sections reveal nodular hyperplasia.

Thyroid:

Sections reveal no histological abnormalities except for intimal thickening of arteries and arterioles.

Adrenals:

Sections reveal intimal thickening of the peri-capsular arteries and arteriole

Spleen:

Sections reveal marked uneven fibrous thickening and hyalinization of the capsule. The arteries and arterioles show marked intimal thickening with hyalinization. pigmented macrophages are scattered about the parenchyma. A few neutrophil are sprinkled about the sinusoids.

Sternum:

Sections reveal an intact periosteum. The adjacent fibro-fatty tissue and skeletal muscle is not remarkable. The cortex and trabeculae are composed of matur bone. The marrow is not abnormal.

Vertebra:

Sections reveal partially intact periosteum. The cortex and trabeculae are delicate. Here the bone marrow shows focal granulocytic cell hyperplasia.

Rib:

Sections reveal attached periosteum. The adjacent skeletal muscle and fatty tissue are not remarkable. A few vessels show slight thickening. The cortex and trabeculae are delicate. Bone marrow is not remarkable.

CASE NO. 34

AUTOPSY NUMBER: US-67

AGE: 47

DATE OF DEATH: 2-5-57

DATE OF AUTOPSY: 10:00 a.m. 2-6-57

PROSECTOR: Richard A. Call, M. D.

ASSISTANTS: John Koense and Robert V. Davis

CHIEF DIAGNOSIS:

1. Immediate cause of death undetermined.
2. Pulmonary emphysema, moderate to marked.
3. Fibrous obliteration of the pleural spaces, moderate to marked.
4. Right ventricular hypertrophy, 6 mm.
5. Leiomyoma uteri.
6. Congestion of the myocardium, liver and kidneys, moderate to marked.
7. Gastric distention, marked.

COMMENT:

The immediate cause of death in this case was not determined histologically. The most significant alteration was the extensive pulmonary emphysema, associated with right ventricular hypertrophy. This, plus the fibrous obliteration of the pleural spaces, undoubtedly markedly reduced the pulmonary reserve. These changes, however, are probably not sufficient to explain away the sudden death. There was no evidence of aspiration or other obstruction to the respiratory tree.

The obliteration of the pleural spaces was probably secondary to a previous episode of pneumonia or empyema.

Thus, the immediate cause of death in this case remains undetermined, however the changes in the cardio-respiratory systems were of great significance.

GENERAL DESCRIPTION:

The body is that of a well developed, well nourished white female, who appears the stated age. It measures 55" in length, and weighs an estimated 120 pounds. Th scalp is covered with long brown hair admixed with grey near the temples. The eyes are normal. The nasopharynx is not remarkable. The ear canals are dry. The nares are normal. The breasts are markedly pendulous. There is moderate livor mortis and the nail beds show cyanosis. A pedunculated verruca is present on the right side of the chin. There is moderate hirsutism about the face and chin. The hair distribution of the pubis is of the male type. A plantar wart is present over the left foot. There are well healed linear scars on the toes, measuring 3 to 4 mm. i diameter. The external genitalia are essentially normal.

PRIMARY INCISION:

The usual Y-shaped incision reveals a 2 cm. layer of yellow lobulated fat. Th musculature is dark red, well developed and moist.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. The stomach is marked enlarged measuring 16 cm. in length by 12 cm. in diameter. The organs are otherwise in normal relationship. The appendix is not remarkable. The right leaf of the diaphragm lies at the level of the 5th rib and the left leaf lies at the level of the 5th intercostal space. The liver does not extend beneath the costal cartilages. The kidneys are normal to palpation and the ureters are not dilated. The spleen is normal to palpation.

Both pleural spaces are largely obliterated by dense fibrous adhesions. This is most marked on the right side and involves the entire pleural space. The left is only localized. Emphysematous bullae are scattered about both lungs, most marked on the right.

The pericardial space contains no excess of free fluid. The heart is normal in contour and position.

HEART:

The heart weighs 240 gm. The chambers are of normal size. Sections reveal marked congestion of the myocardium. The left ventricle measures 1.2 cm. in thickness and the right ventricle varies from 3 to 6 mm. The interventricular and interauricular septa are intact. The valves are grossly normal. The circumferences at the rings are as follows: pulmonic, 6 cm; tricuspid 11 cm; mitral 9 cm; and aortic 6.5 cm. The auricular appendages are empty. Sections through the coronary arteries reveal no abnormalities. The aorta and great vessels are normal.

LUNGS:

The right lung weighs 340 gm. The visceral pleura is covered by innumerable fibrous tags and thick parietal pleura. The latter measures up to 1 mm. in thickness and is smooth, shiny and pearly grey. Sections reveal innumerable emphysematous bullae, varying in size from 1 cm. to about 5 cm. Some contain liquid, others contain air. The inner lining is smooth, shiny, and is grey to red. The parenchyma is salmon pink. The bronchi and bronchioles contain a small quantity of mucus. The vessels are normal.

The parietal pleura is smooth, shiny, and pearly grey. In some areas it measures up to 2 mm. in thickness. Innumerable nodular-like plaques, measuring up to 5 mm. in diameter, are scattered about, most marked in the apex. Similar lesions are identified in the apical portion of the left pleural space.

The left lung weighs 250 gm. and is similar to the right, however, the lesions are less marked.

GASTRO-INTESTINAL TRACT:

The exophagus is not remarkable. The stomach contains undigested food including green string beans. The mucosal and rugal patterns are normal. The duodenum and small bowel contain bile stained chyme. The large bowel contains brown fecal matter. No abnormalities are noted in the bowel wall.

LIVER:

The liver weighs 1300 gm. The capsule is dark tan to purple. On section the lobular pattern is somewhat obscured due to the marked congestion. The biliary radicles and portal vein are essentially normal.

The gallbladder contains a few cc. of bile. The mucosa is normal. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 100 gm. It is normal in shape, color and consistency. On section, no abnormalities are noted.

GENITO-URINARY TRACT:

The right kidney weighs 100 gm. The capsule strips with ease revealing a smooth, shiny, congested surface. On section, the cortico-medullary line is sharp. The cortex measures 8 mm. in thickness and is tan and shows marked congestion. The medulla is purple. The calices, pelvis and ureter are normal.

The left kidney weighs 85 gm. and is similar to the right.

The urinary bladder contains a small quantity of straw colored urine.

The uterus is slightly asymmetrical due to a nodular mass measuring 2 cm. in diameter. It projects above the adjacent tissue on the right side. On section, the tumor nodule is grey and the surfaces are whorled. The myometrium is not otherwise abnormal. The endometrium is essentially normal.

The fallopian tubes are normal.

Both ovaries show atrophy. The surfaces are corregated and pearly grey.

THYROID:

Not remarkable.

ADRENALS:

Not remarkable.

PITUITARY:

Not remarkable.

SPLEEN:

The spleen weighs 200 gm. The capsule is dark purple, smooth, and shiny. On section, the surfaces are dark red to purple, the parenchyma is moderately soft and friable. The malpighian corpuscles are visible.

LYMPH NODES:

Not remarkable.

BONE MARROW:

Marrow from the sternum, rib, iliac crest, and vertebrae is dark red and abundant.

No abnormalities are noted in the bony structures.

HEAD:

No abnormalities are noted in the scalp or calvarium.
The meninges and cerebro-spinal fluid are not remarkable.
The paranasal sinuses, mastoid air cells and middle ears are normal.

BRAIN:

The brain weighs 1250 gm. The cortex is essentially normal. The pia arachnoid show slight congestion. The hemispheres are symmetrical. The arteries at the base show no abnormalities. Sections taken 1 cm. apart reveal no significant abnormalities except for some uneven discoloration of the basal ganglia. There is no evidence of softening or necrosis grossly. Sections through the brain stem and cerebellum reveal no additional abnormalities.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal slight interstitial fatty infiltration of the right ventricular myocardium. Elsewhere, there is perivascular fatty infiltration. The arteries and arterioles show no significant abnormalities.

Lungs:

Sections reveal moderate to marked emphysema. Emphysematous bullae are identified histologically. In some areas, the lung parenchyma shows slight atelectasis. Elsewhere, there is marked congestion with focal interstitial hemorrhage.. Here, the lesions resemble a hemorrhagic infarct. The visceral pleura shows marked fibrous thickening. A few lymphocytic aggregates are scattered about. Anthracotic pigment is moderately abundant in the peribronchiolar areas. The bronchi and bronchioles are not abnormal.

The parietal pleura shows marked fibrous thickening with hyalinization.

Liver:

Sections through the liver reveal slight chronic passive congestion. Lymphocytes are lightly sprinkled about the peri-portal connective tissue. Some of the arterioles show slight thickening.

Pancreas:

Sections reveal slight fatty infiltration. No significant abnormalities are identified.

Stomach:

Not remarkable.

Esophagus:

Not remarkable.

Gallbladder:

Sections reveal far advanced autolysis.

Kidneys:

Sections reveal moderate to marked congestion. An occasional glomerulus shows fibrosis and hyalinization. The associated tubular structures show atrophy. Here, there is slight lymphocytic infiltration. An occasional tubule contains a hyaline type cast.

Uterus:

Sections reveal a leiomyoma. No other significant abnormalities are noted.

Thyroid:

Not remarkable except for slight focal lymphocytic infiltration. The parathyroid gland is not histologically abnormal.

Adrenals:

Not remarkable.

Pituitary:

Not remarkable.

Ovaries:

Not remarkable.

Brain:

Sections reveal congestion and focal perivascular hemorrhage. There is perivascular rarifaction of brain tissue in some sections. Sections through the spinal cord reveal slight focal demyelinization.

Calvarium:

Sections reveal attached fragments of periosteum. The calvarium is composed of a dense cortex and broad trabeculae. Marrow spaces are present. A few cells are scattered about.

Sternum:

Sections reveal intact periosteum. The adjacent skeletal muscle is not remarkable. The cortex and trabeculae are composed of mature delicate bone. The bone marrow is not remarkable.

Rib:

Sections reveal partially intact periosteum. The attached skeletal muscle is not remarkable. A few vessels showing slight thickening are present. The cortex and trabeculae are composed of mature bone. The bone marrow is not abnormal.

Vertebra:

Sections reveal intact periosteum. The cortex and trabeculae are composed of mature bone. The marrow is not remarkable. The intervertebral disc shows some basophilic degeneration with cyst formation.

CASE NO. 35

AUTOPSY NO. US-69

AGE: 80

DATE OF DEATH: 12:35 a.m. 2-17-57

DATE OF AUTOPSY: 2-18-57

PROSECTOR: K. H. Kilburn, M. D.

ASSISTANTS: John Koense and Robert Davis

PATHOLOGIST: Richard A. Call, M. D.

CHIEF DIAGNOSIS:

1. Early acute bronchopneumonia.
2. Generalized arterio and arteriolosclerosis, slight to moderate.
3. Nodular hyperplasia of the prostate.
4. Prostatic lithiasis.
5. Fibrous pleural adhesions, bilateral, slight.
6. Fecal impaction of the rectum.

COMMENT:

The immediate cause of death in this case was undoubtedly due to a combination of factors. The most important terminal episode, however, was the acute bronchopneumonia. The arterio and arteriolosclerosis involved primarily the coronary arteries, aorta and intracerebral arteries.

There was marked inanition and malnutrition.

GROSS DESCRIPTION:

This is the body of a well-developed, poorly-nourished, elderly, Japanese man. It measures 67" in length and weighs 85 pounds. There is moderate frontal balding with preservation of grey to white hair over the posterior head. There is a small amount of black pubic hair and similar axillary hair. The body is unembalmed. There is marked rigor mortis, but only slight livor mortis posteriorly. The pupils are equal and 0.6 cm. in diameter. The sclera are moddy bilaterally. The mouth is edentulous. There is a full upper plate in place. The external naries and mouth are dry and free of secretions. There is no evidence of trauma to any part of the body. There are a number of sessile, pigmented, roughened areas of skin over the lateral temples bilaterally, and over the forehead. There are no palpable lymph nodes. The abdomen is extremely scaphoid and no orgins or masses are palpable There are no abdomenal scars. The lower extremities are extremely thin. The vessels are very prominent, and the feet are in maximal extension.

PRIMARY INCISION:

The usual Y-shaped incision is made through the skin subcutaneous tissues of the thorax and abdomen. The pre-peritoneal fat measures 0.2 cm. at the maximum.

PERITONEAL CAVITY:

There is moderate dilation of the entire colon and a number of firm, discrete masses can be felt in all portions, particularly the sigmoid and recto-sigmoid.

There is only a very small amount of mesenteric and peri-renal fat. The diaphragms are at the 6th intercostal space bilaterally.

PLEURAL SPACES:

The right pleural space contains no free fluid. There are adhesions between the anterior segment of the upper lobe and the anterior chest wall. The left pleural space is empty. There are also anterior and apical adhesions. The lungs meet at the midline and entrely cover the heart. The pericardial space contains about 15 cc. of pale yellow fluid. The heart is small, moderately firm, and shows no ecchymosis or areas of softening. The great vessels are patent. The pulmonary artery is opened in situ and discloses no evidence of thrombi.

CARDIO-VASCULAR SYSTEM:

The inferior and superior vena cava are patent. The right atrium is opened by an incision connecting the vena cavae. The endocardial surface is tannish red. The foramen ovale is anatomatically closed. The coronary sinus is open. The tricuspid valve has a circumference of 11.5 cm., the cusps of the valve are intact and are not thickened. The chorda tendinae are delicate and the papillary muscles are not hypertrophied. The right ventricle has a thickness of 0.2 cm., and shows a regular dark tannish red color of the endocardium. The pulmonary valve is considered competent as it holds water introduced in a retrograde fashion. The pulmonary veins are all patent and free of thrombi. The left atrium has a more tannish color than the right. The atrial appendage is free of thrombi. The mitral valve has a circumference of 8 cm. The leaflets of the valve are delicate.

The chorda tendinae are not thickened. The papillary muscles are not hypertrophied. The left ventricle has a thickness of 1.2 cm. and is very contracted. The coronary arteries, particularly the left coronary, have atheromatous plaques over their first 2 cm. Several of these are calcified in the left anterior descending and the circumflex, but a patent lumen only slightly decreased in cross sectional area is maintained throughout. Sections of the interventricular septum show no areas of scarring, discoloration or hemorrhage. The ascending aorta has a few plaques, particularly just above the aortic valve. The aortic valve measures 8.0 cm. in circumference. There is some atheromatous thickening of the cusps of the valve, but these have not produced rigidity or fusion of the cusps. The abdominal aorta contains many plaques which are confluent and calcified. There are no gross ulcerations and no diminution in the lumenal area. The major branches of the aorta are all patent.

RESPIRATORY SYSTEM:

The trachea and major bronchial segments are pinkish white and contain only very minimal secretion. The only exaggerated amount of mucus is present at the primary division of the right main bronchus, but this does not totally occlude the lumen. The surfaces of the lungs are soft, slightly crepitant, and not consolidated. They appear to contain only a very small amount of air, but cross sectional cuts through the lung parenchyma discloses a dry, somewhat red surface, from which neither fluid nor mucus can be exuded with firm pressure. The right upper lobe is more air filled and less dark in color than the lower lobe. The left lung weighs 310 gm. and its external appearance is similar to the right. Sections transversely through both lobes reveal a very dry, collapsed, but not focally congested or thickened lung parenchyma. Alveoli cannot be seen, and the bronchial segments are not dilated. No primary tuberculous complex is identified in either lung. The right lung weighs 370 grams.

DIGESTIVE SYSTEM:

The esophagus is clear, thin walled, and shows an intact mucus membrane. The stomach is small and contains about 75 cc. of bile-stained fluid (mucus). The mucosa is intact. There are no areas of ulceration, thickening or hemorrhage. The pylorus is intact and the first portion of the duodenum is unremarkable. The remainder of the small bowel contains similar bile-stained, slightly frothy mucoid material. There are no polyps or other abnormalities present. The large bowel contains a number of fecal masses which in the cecum are somewhat soft, but in the transverse colon, and beyond, are almost stony hard. These are greenish grey in color, and completely fill the rectum.

The liver weighs 710 gm. The left lobe is extremely thin and small. The right lobe is spherical. The capsule is smooth and the gall bladder is attached to the under surface of the right lobe in normal position, and the hepatic and the extra-hepatic biliary tree is patent throughout. The gallbladder contains about 10 cc. of light yellowish-green bile. Multiple cross sections through the liver disclose a soft parenchyma which does not contain grossly evident fat or increased fibrosis.

The pancreas weighs 60 gm. and has a normal configuration and duct system. Multiple cross sections show the usual multi-lobulated appearance.

GENITO-URINARY SYSTEM:

The right kidney weighs 110 gm. and the left 95 gm. They are both symmetrical. A small unilocular cyst is present in the lower pole of the right kidney. The capsules strip from both kidneys with ease, disclosing a very slightly granular, purplish, red cortical surface. Section reveals a normal collecting system and preservation of the cortico medullary ratio. There are no ecchymoses, erosions or retained secretions in the collecting systems, on either side. Both ureters are patent and non-dilated, and continue this way to the bladder.

The urinary bladder contains about 3 cc. of cloudy, somewhat mucoid and somewhat granular, foul smelling urine. The bladder mucosa is pale yellowish-white, and intact. The urethra is patent. The prostate is not enlarged. It is 3 x 2.5 x 4 cm. Multiple cross sections through the prostate disclose several calcified prostatic stones, but no areas suggesting carcinoma or suppuration. The testes are small and extremely atrophied.

ENDOCRINE SYSTEM:

The pituitary is symmetrical. Cross sections reveal no abnormalities. The thyroid is moderately symmetrical. The parenchyma is dark pink and uniform throughout. There are no areas of calcification, adenoma formation or induration. The adrenals are extremely small. They are estimated to weigh less than 4 gm. each. Cross sections disclose a very thin cortex with only occasional yellow nodules of cortical lipid. The medulla is not remarkable.

HEMOPOETIC SYSTEM:

The spleen weighs 35 gm. The cut surface discloses prominent white pulp and decreased red pulp. The capsular surface is not remarkable.

The vertebral bone marrow is dark red, and the trabeculi can be easily crushed, revealing an abundance of pasty marrow.

CENTRAL NERVOUS SYSTEM:

The usual transverse incision is made through the skin and subcutaneous tissues of the head and the calvarium is opened in the usual manner. The brain weighs 1260 gm. The hemispheres are symmetrical. There are no areas of softening, discoloration or distortion of the sulci or gyri. Multiple sections through the upper cord and brain stem disclose a symmetrical appearance without abnormality. Sections through the cerebellum showed an intact vermis and dentate nucleus, and intact cerebellar lobes. The vertebral arteries, caroted arteries and major branches of the circle of Willis are moderately thickened with atheromatous plaques which, in some areas, are calcified. The change is most marked in the caroted and the basilar arteries. No areas of thrombus formation or occlusion are present. Multiple sections through the cerebral hemispheres in the frontal plain disclose symmetry of the cortex, the corpus striatum, thalmus, upper brain stem and ventricular system. There are no areas of discoloration, softening or tumor formation. The internal capsules appear intact and are of equal size. The occipital cortex is thinner but again is symmetrical and the posterior branches and lateral ventricles are equal and symmetrical.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal some thickening of the arteries and arterioles. There is slight perivascular and focal interstitial fibrosis of the myocardium. There is distinct atrophy of the myocardial fibers in many areas. Brown granular pigment lies adjacent to the nuclei of many of the fibers.

Lungs:

Sections reveal congestion, slight to moderate emphysema and focal slight atelectasis. In some areas, there is early bronchopneumonia. Here, the alveoli are filled with edema fluid, red cells and a few neutrophils. The bronchioles and bronchi contain red cells and mucus. Many arteries and arterioles show slight to marked intimal thickening. Some show almost total lumenal obliteration.

Pancreas:

Not remarkable except for slight thickening of some arteries and arterioles. A few lymphocytes are scattered about the interstitial tissue.

Liver:

Sections reveal slight neutrophilic infiltration. These are most prominent in the central zones. The periportal triads are not altered significantly; however, a few lymphocytes are scattered about.

Kidneys:

Sections reveal slight congestion. Some arteries and arterioles show slight to moderate intimal thickening and hyalinization.

Prostate:

Sections reveal dense fibromuscular tissue, containing prostatic glands which vary widely in size. Many contain corpora amylacea. A few circumscribed nodular foci, composed of small to large glands, are also present. Lymphocytes and plasma cells are lightly sprinkled about.

Spleen:

Sections reveal marked congestion with depletion of the lymphoid element. There is marked intimal thickening with hyalinization of arteries and arterioles. Some show total lumenal obliteration.

Thyroid:

Not remarkable, except for some thick-walled vessels.

Adrenals:

Sections reveal intimal thickening and hyalinization of many of the pericapsular arteries and arterioles; some show marked lumenal narrowing. A few show almost total obliteration.

Pituitary:

Not remarkable.

Brain:

Sections reveal slight thickening of some arteries and arterioles. There is distinct perivascular rarifaction and degeneration of brain parenchyma. A few of these areas contain gitter cells.

Calvarium:

Sections reveal poor decalcification. The cortex and trabeculae are composed of dense mature bone. The marrow spaces are filled with cellular and fatty marrow. Periosteum is largely absent.

Vertebra:

Sections reveal an intact periosteum. The cortex and trabeculae are composed of delicate mature bone. The marrow is not remarkable. There is distinct degeneration with cyst formation of the intervertebral disc.

Rib:

Sections reveal partially intact periosteum. The adjacent skeletal muscle is not remarkable. The cortex and trabeculae are composed of mature bone. The bone marrow is not remarkable.

Iliac Crest:

Sections reveal intact periosteum. The associated skeletal muscle and fibrofatty tissue are not remarkable. The cortex and trabeculae are composed of delicate mature bone. The marrow is not remarkable.

CASE NO. 36

AV-285

AGE: 50

DATE OF DEATH: Approximately 3:00 p.m., 2-25-57

DATE OF AUTOPSY: 8:30 a.m., 2-26-57

PROSECTOR: Kaye H. Kilburn, M. D.

PATHOLOGIST: Richard A. Call, M. D.

CHIEF DIAGNOSIS:

1. Acute bronchopneumonia, early.
2. Aspiration of gastro-esophageal contents, marked, terminal?
3. Peptic ulcer of the duodenum.
4. Pyloric stenosis with gastric hypertrophy.
5. Infarction of the corpus striatum and internal capsule, bilateral, old.
6. Cardiac hypertrophy, 740 grams.
7. Dilation of the right lateral cerebral ventricle.
8. Gastric dilation, marked.
9. Obstruction of the esophagus?

COMMENT:

The immediate cause of death in this case was undoubtedly due to a combination of factors. The most important terminal episode being the aspiration of gastric contents associated with bronchopneumonia. The stenosis of the pyloris associated with gastric hypertrophy plus the active peptic ulcer undoubtedly played a significant role in the final demise. The gross description of the contents of the bowel reveals no evidence of a massive gastro-intestinal hemorrhage from this ulcer.

The presence of food products filling and partially obstructing the esophagus is difficult to assess anatomaically. This may represent a true obstipation or it may represent regurgitation terminally. However, histologically the esophagus show focal ulceration with acute and chronic inflammatory cell infiltration. This may be the result of the obstipation. This situation is probably related to the pylori stenosis and/or cardiospasm.

The infarction of the corpus striatum and internal capsule associated with distention of the right lateral ventricle is an old process. The exact age can not be determined histologically. However, it is probably of several month's duration.

GENERAL DESCRIPTION:

The body is that of a late middle-aged white male. It measures 6 feet in leng and weighs 185 pounds. There are multiple ecchymoses over the dorsal and ventral aspects of both lower arms and there is a similar discoloration of the lower legs bilaterally. There is male distribution of abundant white hair with slight frontal balding. There is a transverse 5.5 cm. tracheotomy incision just below the thyroi cartilage. The opening has tracheal rings visible in the depths. There are embal er's buttons over the medial and lateral aspects of both knees, about 4.0 cm. later to the umbilicus, and there are embalmers incisions in both inguinal areas. The status of the external areas and mouth secretions cannot be determined because of fixation. There are no palpable masses or organs in the abdomen and there are no palpable lymph nodes. The remainder of the gross examination is not remarkable.

PRIMARY INCISION:

The primary incision through the skin and subcutaneous tissue reveals a pre-peritoneal fat layer of 3.0 cm. The large bowel and small bowel have been punctured in numerous places by the embalmers trocars. The stomach is greatly dilated and has a maximum diameter of at least 15.0 cm. and occupies the entire left upper abdomen extending across the midline. The liver is approximately normal size, as is the spleen. The small and large intestines both have a peculiar bright green color. The peritoneum contains a considerable amount of somewhat mucoid brownish fluid which has the appearance of altered blood and considerable serous fluid (embalming fluid). The pelvic organs are unremarkable. The right diaphragm is at the 3rd intercostal space and the left is at the 5th rib.

PLEURAL CAVITIES:

Both pleural cavities are entirely filled by lung. Neither contains any fluid. There are no pleural adhesions.

PERITONEAL CAVITY:

The peritoneal cavity contains about 20 cc. of pale yellow fluid. It is otherwise unremarkable. The heart is markedly hypertrophied but the surface is not remarkable.

CARDIOVASCULAR SYSTEM:

The heart weighs 740 grams. The inferior and superior vena cava are patent throughout and there are no thrombi. The right atrium has a smooth endocardial surface which is pinkish tan. The foramen ovale is anatomically patent but guarded by an adequate flap. The coronary sinus is widely open. The tricuspid valve has a circumference of 12.0 cm. The chordae tendinae are delicate. The papillary muscles are not hypertrophied. The right ventricle has a thickness of o.3 cm. and has a reddish brown myocardium. The pulmonic valve is 7.5 cm. in circumference and the major branches of the pulmonary artery are free of thrombi. There is no plaquing of the pulmonary artery. The valve is unremarkable. The left atrium has a tannish pink surface. The atrial appendage is free of thrombi, and the mitral valve has a circumference of 10.0 cm. The left ventricle has an average thickness of 1.8 cm. The muscle is red-brown and many transverse cuts reveal no areas of scarring or degeneration. The aortic valve has a circumference of 9.0 cm. The cusps are delicate and hold fluid introduced in a retrograde manner. The first portion of the aorta measures 10.5 cm., and is otherwise unremarkable. The aortic arch and the remainder of the aorta contain many atheromatous plaques, many of which are calcified, and the left common iliac artery has a concentric plaque which obstructs about one-half of the lumen. The remainder of the branches of the thoracic and abdominal aorta are not remarkable.

RESPIRATORY SYSTEM:

The larynx has a moderately granular surface. The true cords oppose in the midline. There is some somewhat granular mucoid and starchy material in the larynx and the first portion of the trachea. The tracheotomy incision is at the 5th tracheal ring extending through the 6th and part of the way through the 7th. There is no ulceration surrounding the tracheotomy. This lies just below the isthmus of the thyroid. The trachea and bronchi are clear through their first portions but the secondary bronchi, particularly to the left lower lobe and right lower lobe contains similar material to that seen in the larnyx, which has the appearance of "gruel". Dissection of the major bronchial branches shows this material present in many of the terminal bronchial subdivisions. There are a number of areas present in the lower lobe of the left lung suggesting consolidation. On cross section the alveoli of these are visible and stand out from the surrounding dark red lung parenchyma. It is assumed that these are areas of obstructive emphysema. The right lung weighs 870grams. The external surface is somewhat dark, but otherwise not remarkable. The cut surface discloses plugging of terminal bronchioles by "gruel" appearing material.

The left lung weighs 850 grams. Its appearance, in every way, is similar excep for the previously described areas of emphysema.

DIGESTIVE SYSTEM:

The esophagus from the glottis down to the cardia is dilated to a circumference of 5.0 cm. and contains a bolus of rather laminated food material, the lower end of which surrounds a "mercury-filled" rubber balloon. The edges of this bolus touching the esophagus are stained a deep green. (This was food coloring introduced in the formula to check on its regurgitation into the trachea.)

The full stomach weighs 1800 grams. The empty stomach weighs 600 grams. It measures 12.0 cm. along the lesser curvature and 27.0 cm. along the greater curvatur The pylorus is hypertrophied and stenotic with a lumen having a diameter of less than 0.5 cm. The rugal folds of the pylorus are greatly dilated, but also hypertrophied, and the remainder of the stomach including the cardia has a granular roughene appearance. 4.0 cm. below the pylorus in the lateral wall of the duodenum is an ulcer crater with a surrounding zone of contraction. The crater measures 0.4 cm. in diameter and is roughly square. The remainder of the duodenum, jejunum, ilium and large colon are stained deep green. The staining becomes more marked as the bowel is descended. The stomach, however, contains no green material. Its contents are about 1200 ml. of sero-sanguinous fluid, the blood all showing rather advanced decomposition; brown and flaky in appearance.

LIVER:

The liver weighs 2300 grams. The capsular surface is unremarkable. The gallbladder and extra-hepatic biliary ducts are not dilated and contain bile. There are no stones in the gallbladder. The cut surface of the liver bulges very slightly above the capsule and shows a distinct mottling, the variation being between pinkish and rather greenish liver tissue. The pinkish portion surrounds the portal triads. (This is probably due to previous fixation.)

PANCREAS:

The pancreas weighs 150 grams. It is of a lobular form and the cut surface is not remarkable.

GENITO-URINARY SYSTEM:

The right kidney weighs 170 grams. The left weighs 150 grams. Both have smooth capsular surfaces. The capsules strip with ease and longitudinal section reveals preservation of the cortico-medullary ratio. The calices, remainder of the collective system are thin-walled, shiny and undilated. The ureters are patent to the bladder.

The urinary bladder is somewhat trabeculated. The epithelium is granular. There are many areas of superficial ecchymoses. There are particularly prominent in the dome of the bladder.

The prostate measures 4.0 x 3.0 x 4.0 cm. The cut surface shows a few dilated glands but is otherwise unremarkable. The testes are estimated to weigh 6 grams each The cut surface is unremarkable. The tubules strip with ease.

ENDOCRINE SYSTEM:

The pituitary is symmetrical. The cut surface shows a large cyst in the pars intermedia. It is otherwise unremarkable.

THYROID:

The thyroid weighs 60 grams. It consists of two large lateral poles which are symmetrical and an isthmus with a caudate lobe. The cut surface is unremarkable.

ADRENALS:

The adrenals are small, flat and weigh less than 4 grams each. The cut surface shows a considerable number of orange lipid cortical nodules but no other remarkable findings are present.

HEMATOPOIETIC SYSTEM:

The spleen weighs 120 grams. The capsular surface is unremarkable. The cross cut section of the spleen shows fairly prominent white pulp and pale pink red pulp. (this is probably due to partial fixation).

VERTEBRAL BONE MARROW:

The vertebral bone marrow is red and cellular. The ribs are similar.

CENTRAL NERVOUS SYSTEM:

The dura and arachnoid are unremarkable. The brain has been partially fixed and is pigmented somewhat pink and has no visible veins on the surface. The brain weighs 1500 grams and is symmetrical. The external surface is completely unremarkable. There are no areas of particular softening. Sections of the cerebellar hemispheres and the brain stem reveal no remarkable findings. Sections in the frontal plane through the cerebral hemispheres reveal a small cyst about 5.0 cm. from the anterior pole of the right frontal lobe. This is next to the cortex and contains some pale brownish fluid. It measures 1.3 cm. in the greatest diameter. The internal capsule, globus pallidus and putamen on both sides show cystic change with considerable amount of brownish fluid in these small cysts, none of which measures over 0.2 cm. in diameter. It is impossible to tell which side has preceded the other. On the right side of the brain the external capsule and uncus show more advanced changes than do the components of the lenticular nucleus. However, the internal capsule is soft, somewhat pigmented and few fibers can be seen which descend the entire cross section or cross it without being disrupted. The left side shows similar changes in the internal capsule and particularily the caudate nucleus. These are somewhat less marked than on the right side. The thalmus and hypothalmus are unremarkable. The midbrain was likewise symmetrical and unremarkable. The only other findings of interest in the cerebral hemispheres was dilation of the right lateral ventricle, particularly the posterior horn, which extended further posterior and was about twice the diameter of the lateral posterior horn of the left ventricle.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal moderately extensive perivascular and interstitial fibrosis of the myocardium. Some of the arteries and arterioles show intimal thickening. Some show total lumenal obliteration.

Lungs:

Sections reveal slight to marked edema, congestion and focal intra-alveolar hemorrhage. There is beginning acute bronchopneumonia, most marked in the areas of congestion and edema. The bronchioles are filled with neutrophilic exudate. The vasculature is not remarkable.

Sections through the bronchus reveal some squamous metaplasia of the epithelium. There is focal neutrophilic infiltration of the epithelium and subjacent structures. The inflammatory infiltrate extends to the bronchial glands. The cartilaginous rings show focal fibrous replacement.

Gastro-intestinal tract:

The esophagus shows superficial ulceration of the epithelium with marked focal neutrophilic infiltration. The stratified squamous epithelium shows focal hyperplasi The musculature is not remarkable.

Liver:

The liver shows only slight lymphocytic infiltration of the periportal fibrous tissue. No other significant alterations are identified.

Pancreas:

Some arteries and arterioles show slight to moderate intimal thickening.

Genito-urinary:

Sections of the kidneys reveal congestion, most marked within the glomeruli. An occasional fibrotic and hyalinized glomerulus is present. Some arteries and arteriol show slight to moderate intimal thickening and hyalinization. Some of the tubules contain hyaline casts, otherwise, there are no significant alterations.

Sections through the prostate reveal no significant abnormalities.

Sections through the testes reveal some congestion and a few thick-walled vessels. Seminiferous tubules are not remarkable, except for slight focal thickening of the basement membranes.

Thyroid:

Sections reveal extensive interstitial fibrosis. The follicles vary in size from small to moderate and are well filled with colloid. The epithelium is not remarkable. Thick-walled vessels are moderately abundant.

Pituitary:

Not remarkable except for moderate distention of the colloid spaces in the pars intermedia.

CASE NO: 36

Spleen:

Sections reveal intimal thickening and hyalinization of many arteries and arterioles. Some show almost total lumenal obliteration. There is extensive depletion of the lymphoid element. Granular pigmented macrophages are moderately abundant.

Lymph nodes:

Sections reveal moderate anthracosis of the peribronchiolar nodes.

Adrenal:

Not remarkable except for intimal thickening of the pericapsular arterioles.

Brain:

Sections reveal moderate intimal thickening and hyalinization of some arteries and arterioles. The most significant alteration is the extensive degeneration with cyst formation and gliosis. Here, granular pigmented macrophages are abundant. Delicate connective tissue stroma traverse some of these cystic spaces. In some areas there is distinct perivascular lymphocytic infiltration and perivascular macrophagic infiltration. An occasional vessel shows thrombosis with organization. Sections through the cerebellum and substantia nigra reveal no additional abnormalities.

Sternum:

Sections reveal intact periosteum. The attached skeletal muscle is not remarkable. The cortex and trabeculae are composed of mature bone. There is distinct hyperplasia.of the granuloytic series of the bone marrow.

Rib:

Sections reveal intact periosteum. The cortex and trabeculae are not remarkable. The bone marrow is similar to that previously described.

Iliac Crest:

The periosteum is intact. The cortex and trabeculae are not remarkable. The bone marrow is similar to that previously described.

Vertebrae:

Sections reveal partially intact periosteum. Some vessels are present The attached skeletal muscle and fibro-fatty tissue is not remarkable. The cortex and trabeculae are composed of mature delicate bone. The bone marrow shows granulocytic cell hyperplasia. The intervertebral disc shows degeneration with cyst formation.

CASE NO 37:

A-283-57

AGE: 4

DATE OF DEATH: Approximately 6:00 p.m., February 24, 1957

DATE OF AUTOPSY: 1:30 p.m., February 25, 1957.

PROSECTOR: Kaye H. Kilburn, M. D.

PATHOLOGIST: Richard A. Call, M. D.

CHIEF DIAGNOSIS:

1. Poisoning, secondary to ingestion of "water hemlock" (conium maculatum identified by Dr. Bertrand Harrison, Botanist, Brigham Young University, Provo, Utah)
2. Interstitial pneumonia, moderate.
3. Cerebral edema.
4. Bicornate uterus.
5. Accessory spleen.

COMMENT:

The immediate cause of death could well have been the poisoning by "water hemlock. The substance within the stomach was identified by Dr. Harrison, Botanist at the Brigham Young University. It is impossible to make a positive histologic identification of poisoning in this case.

The moderately extensive interstitial pneumonia is of great importance, however, what role it played in the final demise is undetermined. It is possible for interstitial pneumonia of this degree to result in death. It is unlikely that the chronic and acute inflammatory cell infiltration was secondary to the poisoning. The length of time between the poisoning and death is not sufficiently long to allow for the infiltration of inflammatory cells. The congestion and edema are generally secondary to poisoning by hemlock.

The other findings are of interest but added little to the final demise.

Blood culture: negative.

GENERAL DESCRIPTION:

The body is that of a female child of about three years of age. The length is 39.5 inches and the weight is estimated at 40 pounds. The body is unembalmed. There is marked livor mortis of the extremities and of the back dependently and moderate rigor mortis. The pupils are equal and measure 0.4 cm. each. The external nares and mouth are free of secretion. The ears are similarly free of secretion. There is erythema of the medial aspect of both thighs and the labia bilaterally. Areas of this are covered by granular white material possibly sodium bicarbonate (?). Below the knee of the right leg are affixed two "band-aids" over superficial abrasions of the skin. There are no palpable lymph nodes. Examination of the chest and abdomen is otherwise unremarkable. There is moderate tympany over the anterior abdomen.

PRIMARY INCISION:

The usual Y-shaped incision is made through a 1.0 cm. layer of pre-peritoneal fat. The muscles are moderately red in color and do not appear excessively plethoric

PERITONEAL CAVITY:

The large and small bowel lie in normal position. The liver is slightly enlarged. The spleen and remaining organs are in normal position and do not appear altered. The left diaphragm is at the 4th intercostal space and the right diaphragm is at the 3rd intercostal space.

PLEURAL CAVITIES:

The pleural cavities contain no fluid and there are no adhesions between the visceral and parietal pleura. The lungs completely fill the cavity. They are bright pink except for the right upper lobe, which is paler pink. All portions of the lungs feel air-filled and unaltered.

PERICARDIAL CAVITY:

The pericardial cavity contains about 5.0 cc. of pale yellowish fluid. The heart completely fills the cavity. There are no pericardial adhesions. The right atrium is somewhat distended but the remainder of the heart appears normal.

CARDIOVASCULAR SYSTEM:

The heart weighs approximately 85 grams. Both vena cava and major branches thereof are patent. The tricuspid valve has a circumference of 6 cm. The foramen ovale is anatomically closed. The right atrium has a smooth pinkish tan appearance. The right ventricle has a thickness of 0.2 cm. and the muscle is homogeneous and unremarkable. The pulmonic valve has a circumference of 3.5 cm. and the cusps hold water introduced in a retrograde manner. The pulmonary artery and major branches thereof are patent and free of thrombi. The pulmonary veins are likewise patent and free of thrombi. The left atrium has a smooth tanish white appearance. The mitral valve has a circumference of 6.0 cm. The left ventricle has an average thickness of 1.0 cm. and has a homogeneous dark reddish brown color. The aortic valve has a circumference of 3.0 cm. The cusps are delicate and hold water introduced in a retrograde manner. The coronary arteries are patent and section of the interventricular septum discloses no abnormalities.

RESPIRATORY SYSTEM:

The larynx, trachea and bronchi contain a small amount of frothy white mucus with no particular matter. The vocal cords are in partial aposition and there are no foreign bodies found in the larynx or trachea. The right lung weighs 110 grams and the left lung weighs 95 grams. Both have a homogeneous pink surface and are crepitant. All of the lobes are moderately deep pink in color and have an air-filled texture. The right upper lobe is much paler but the cut surface of all are similar None exude fluid or show foci of consolidation.

DIGESTIVE SYSTEM:

The lower esophagus and stomach contain an estimated 75 grams of green leafy vegetable material which has apparently been well chewed, but no digestion has taken place. There is no characteristic odor and the material is rather putty-like in texture. There is no ulceration of the stomach, esophagus or duodenum. The small bowel and large bowel contain moderate amounts of greenish fecal material, particularly the ileum and colon. This becomes more formed as the bowel is descended. The rectum is not remarkable.

The liver weighs 510 grams. Its capsular surface is smooth and is purplish-red. The cut surface reveals a homogeneous texture. The parenchyma does not bulge above the capsule. There are no circumscribed lesions or areas suggesting abnormalit

The pancreas weighs 30 grams. It is homogeneous and has a regular lobular pattern, with interspersed septa containing fat.

The bile ducts, gallbladder and extra-hepatic biliary ducts are not remarkable. There are no stones and the ducts are patent to the duodenum.

GENITO-URINARY TRACT:

The kidneys weigh 50 grams each and have a dark purple color. The capsules strip with ease. There is a normal cortico-medullary ratio and the calices, pelvis and ureters are thin, smooth and non-dilated. The ureters are patent to the bladder. The urinary bladder is empty and has a greyish-blue and somewhat brownish epithelium. There are no ecchymoses or other abnormalities. The ovaries are about 1.5 cm. in length and symmetrical. The tubes are intact and the uterus is bicornate, small and attached to a normal appearing vaginal mucosa.

ENDOCRINE SYSTEM:

The pituitary is symmetrical and in no way remarkable.

The adrenals are estimated to weigh one gram each. They are small, flat and show some cortical lipid.

THYROID:

It is composed of two symmetrical lateral lobes 1.3 cm. in length and a narrow isthmus. It is unremarkable.

HEMATOPOIETIC SYSTEM:

The vertebral bone marrow is red and cellular.

The spleen weighs 70 grams. The cut surface discloses prominence of a white pulp. The capsular surface is unremarkable.

There is a small accessory spleen located posterior to the spleen and attached to the tail of the pancreas by a loose fibrous cord. There is another accessory spleen about 0.3 cm. in diameter in the tail of the pancreas.

CENTRAL NERVOUS SYSTEM:

The brain weighs 1360 grams. The sulci are somewhat flattened and the gyri somewhat raised. It is fixed. The spinal cord from the cervical area shows no abnormalities. The cross section shows intact anterior and posterior horns without increased pigmentation of either. Sections reveal no abnormalities.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal some congestion. An occasional lymphocyte is scattered about.

Lungs:

The most significant alteration is the extensive interstitial lymphocytic and slight neutrophilic infiltration. The intra-alveolar septa are markedly thickened due to the inflammation. There is marked congestion, focal hemorrhage and slight to moderate edema. Here, there is slight intra-alveolar neutrophilic infiltration, however, most of the acute and chronic inflammatory cells lie in the interstitial tissue. There is peri-bronchiolar and peri-bronchiol lymphocytic infiltration. Vascular spaces are not remarkable.

Liver:

Sections reveal slight lymphocytic and neutrophilic infiltration of the periportal fibrous connective tissue. A few acute and chronic inflammatory cells are also scattered about the sinusoids.

Pancreas:

Not remarkable.

Kidneys:

Not remarkable except for congestion.

Bowel:

Not remarkable.

Adrenals:

Not remarkable.

Spleen:

Not remarkable.

Thymus:

Not remarkable.

Pituitary:

Not remarkable.

Thyroid:

Not remarkable.

Ovaries:

Not remarkable.

Uterus:

Not remarkable.

Stomach:

Not remarkable.

Lymph nodes:

Not remarkable.

Brain:

Not remarkable, except for congestion and slight edema.

Sternum:

Sections reveal a fragment of cartilage and cancellous bone. The latter is composed of delicate trabeculae. The marrow is not remarkable. The cartilage shows no abnormalities.

Rib:

Sections reveal intact periosteum. The cortex appears slightly thickened. The trabeculae are delicate. No abnormalities are noted. The marrow is not remarkable.

CASE NO. 38

A-295-57

AGE: 84

DATE OF DEATH: April 18, 1957, 9:12 p.m.

DATE OF AUTOPSY: 10:30 a.m. April 19, 1957.

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Robert V. Davis.

CHIEF DIAGNOSIS:

1. Acute broncho-pneumonia, early.
2. Fractured hip, left, recent.
3. Acute glomerulitis.
4. Mediastinal cyst, benign.

COMMENT:

The immediate cause of death in this case was the result of a combination of factors. The acute broncho-pneumonia was early and was undoubtedly of great importance in the terminal episode. The shock associated with the fractured hip undoubtedly added greatly to the final demise. The acute glomerulitis may have been secondary to the early acute broncho-pneumonia or a separate and distinct entity.

The mediastinal cyst resulted in marked deviation of the trachea. This may have been symptomatic prior to death.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished elderly white female who appears the stated age. It measures 61" in length and weighs an estimated 165 lbs. The scalp is covered with grey hair. A papillary pigmented nevus measuring 1.0 cm. lies at the base of the neck on the left side. The nares and ear canals are not remarkable. Embalming precludes examination of the eyes and nasopharnyx. The breasts are not remarkable. A well healed linear scar extends from the umbilicus to the pubis in the midline. A recent surgical wound measuring 15.0 cm. in length lies over the left hip. The external genitalia are essentially normal. The hair distribution is that of a normal adult female. The whole abdomen is covered by linea stria. The left leg shows moderate edema. A few ecchymoses are scattered about the lower edge.

PRIMARY INCISION:

The usual Y-shaped incision reveals a 4.0 cm. layer of yellow lobulated fat. The musculature is dark red and is not remarkable.

SEROUS CAVITIES:

The organs lie in normal relationship. The uterus, fallopian tubes and ovaries are absent. (surgically removal, old). The appendix is elongated and is adherent to the brim of the pelvis. Innumerable fibrous adhesions are scattered about the greater omentum and the interior abdominal wall. Otherwise no abnormalities are noted. The liver lies at the costal margin. The right leaf of the diaphragm lies at the level of the fourth rib and the left leaf lies at the level of the fifth rib.

Pleural spaces contain no excess of free fluid. A few fibrous adhesions are scattered about the apices of both upper lobes. Lying in the anterior superior mediastinum is a thinned walled cyst filled with yellow straw colored fluid. In its greatest dimensions it measures 8.0 x 6.0 x 6.0 cm. The inner lining is smooth, shiny and yellow grey. It is bordered on the left side by the left subclavian artery and the left common carotid artery. It is bordered on the right side by the innominate artery and the trachea. It is bordered inferiorly by the aortic arch and anteriorly by the sternum.

The pericardial space contains a few cc. of yellow straw colored fluid. The heart lies in normal position and is normal in contour.

HEART:

The heart weighs 380 grams. Sections reveal no abnormalities. The right ventricular myometrium averages 4.0 x 5.0 mm. in thickness and the left averages 1.5 cm. in thickness. The interventricular and interauricular septa are intact. The chambers are of normal size. The valves are essentially normal. The circumference of the valves at the rings are as follows, pulmonic 6.5, tricuspid 11.0, mitral 9.0 and aortic 7.0 cm. Sections through the coronary arteries reveal moderate atherosclerosis, however, no areas of occlusion are present.

AORTA AND GREAT VESSELS:

The aorta shows moderate atherosclerosis becoming more marked as it is descended. Atherosclerotic plaques measuring up to 2.0 cm. in diameter are scattered about. These are most marked in the abdominal aorta.

LUNGS:

The right lung weighs 420 grams. The pleura is pale red to purple and shows normal crepitus throughout. Fibrous adhesions are scattered about the apex of the upper lobe. Anthracotic pigment is moderately abundant. On section copious quantities of thick grey purulent liquid exude freely from the bronchioles. This is most marked in the lower lobe. Here parenchyma is moderately moist grey-red and firm. The trachea and bronchi contain a similar purulent liquid. The vessels are not remarkable.

The left lung weighs 450 grams and is similar to the right.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable. The stomach contains a few cc. of mucous. The rugal and mucosal patterns are normal. The small bowel contains bile stained chyme. The large bowel contains gas and brown fecal matter. No abnormalities are noted in the wall.

LIVER:

The liver weighs 960 grams. The capsule is tan. On section the normal lobular pattern is identified. Occasional foci of fibrosis are scattered about. The larger measures 1.0 cm. in diameter. The biliary radicals and portal vein are patent.

The gallbladder contains about 50 cc. of thin green bile. The gallbladder mucosa is essentially normal. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 200 grams. It is normal in shape and color. On section there is moderate fatty infiltration.

SPLEEN:

The spleen weighs 230 grams. The capsule is smooth, shiny and purple. On section the surfaces are red-purple. The malpighian corpuscles are easily visible grossly.

LYMPH NODES:

Not remarkable except for anthracosis and focal fibrosis.

BONE MARROW:

The bone marrow of the ribs is thin and a dark red. Fatty marrow is scanty. Similar thin red marrow lies within the iliac crest and the sternum.

GENITO-URINARY:

The right kidney weighs 170 grams. The capsule strips with slight difficulty revealing a finely granular tan surface. On section the cortico-medullary line is sharp. The cortex averages 8.0 x 10.0 mm. in thickness. The medulla is purple. No gross abnormalities are noted. The calices, pelvis and ureter are normal.

The left kidney weighs 150 grams, and is similar to the right.

The uterus, fallopian tubes and ovaries are absent.

ADRENALS:

Not remarkable.

THYROID:

Not remarkable.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal some thickening of the arterioles and arteries. The coronary artery shows moderate thickening with focal medial calcification. There is slight perivascular fibrosis. All sections show autolysis. There is moderate focal fatty infiltration of the right ventricular myocardium. Similar fatty infiltration is identified in the perivascular areas of the left ventricular myocardium.

Lungs:

Sections reveal congestion and anthracosis. Most of the bronchioles are filled with neutrophilic exudate. There is moderate neutrophilic infiltration throughout the bronchiolar walls. The adjacent alveoli show early neutrophilic infiltration. There is moderate perivascular anthracosis.

Liver:

There is focal accentuation of the periportal connective tissue. The latter shows moderate lymphocytic infiltration. Some arteries and arterioles show intimal thickening. There is some chronic passive congestion with bile staining of cord cells in the central zone.

Pancreas:

Sections reveal moderate fatty infiltration. Some vessels show slight intimal thickening. Otherwise no abnormalities are noted.

Bowel:

The bowel wall shows some lymphocytic infiltration. There is marked autolysis.

Kidneys:

Sections reveal neutrophilic infiltration of all glomeruli. The capsule shows uneven thickening. Fibrotic and hyalinized glomeruli are scanty. Occasional foci of atrophy with lymphocytic infiltration lies adjacent to the capsule. Some arteries and arterioles show intimal thickening. Collecting tubules within the medulla contain hyaline casts. Some show calcification. Some tubules within the cortex contain red blood cells, others contain neutrophils. Most, however, show no significant abnormalities.

Adrenals:

Not remarkable.

Pericardial Cyst:

Sections reveal a connective tissue wall. Fibro-fatty tissue lies adjacent to the wall. Characteristic epithelium is not present in the sections examined.

Spleen:

Not remarkable except for intimal thickening of the arteries and arterioles.

Sternum:

Sections reveal an intact periosteum. The cortex and trabeculae are composed of mature delicate bone. The marrow is not remarkable, except for some granulocytic hyperplasia.

Vertebra:

The trabeculae are composed of delicate mature bone. The marrow shows some granulocytic cell hyperplasia. The interventebral discs show cystic degeneration. Periosteum is not present.

Rib:

Sections reveal intact periosteum. The attached skeletal muscle is not remarkable. The cortex and trabeculae are essentially normal. The marrow is similar to that previously described.

Iliac Crest:

Section reveals a partially intact periosteum and a small amount of skeletal muscle. The cortex and trabeculae are delicate and mature. The bone marrow is similar to that previously described.

CASE NO. 39

A-302-57

DATE OF DEATH: 5-21-57 8:20 a.m.

DATE OF AUTOPSY: 5-22-57, 8:30 a.m.

AGE: 49

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Robert V. Davis

CHIEF DIAGNOSIS:

1. Occlusion of the anterior descending branch of the left coronary artery with extensive myocardial infarction.
2. Arterio and arteriolosclerosis, slight to marked.
3. Rokitansky Aneurism of the left ventricle, early, secondary to No. 1.
4. Mural thrombus of the left ventricle, secondary to No. 1.
5. Fibrinous pericarditis, secondary to No. 1.
6. Bilateral hydrothorax, right, 400 cc., left, 600 cc.
7. Renal infarcts, acute.
8. Chronic passive congestion of the liver.
9. Atelectasis of the lower lobes.

COMMENT:

The immediate cause of death was the result of the occlusion of the anterior descending branch of the left coronary artery with associated myocardial infarction. Sections revealed all stages of infarction from the acute early stage to the healing stage. The initial episode probably occurred at least 10 to 14 days prior to death. The Rokintansky Aneurism was the result of the extensive infarction of the left ventricle. The mural thrombus undoubtedly gave rise to the renal infarcts.

The fibrinous pericarditis and the bilateral hydrothorax were secondary to heart failure.

GENERAL DESCRIPTION

This is the body of a well developed, well nourished white man who appears the stated age. It measures 68" in length and weighs an estimated 165 pounds. The scalp is covered with brown hair admixed with grey at the temples. The eyebrows are bushy. Examination of the eyes and nasopharynx is precluded by embalming. Embalming incisions are present at the base of the neck bilaterally. Needle puncture wounds are scattered about the upper arms. Most of these are surrounded by ecchymoses varying in size from 1.0 to 2.5 cm. The external genitalia are not remarkable. The hair distribution is that of a normal adult male. There is bilateral pes cavus.

PRIMARY INCISION:

The usual Y-shaped incision reveals a 2.0 cm. layer of yellow lobulated fat. The musculature is dark red well developed and moist.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. The organs lie in normal relationship. The appendix is not remarkable. The right leaf of the diaphragm lies at the level of the fourth intercostal space and the left leaf lies at the level of the fifth intercostal space. The liver is smooth, shiny and tan. The margins are acute and do not extend beneath the costal border.

The right pleural space contains 400 cc. of straw colored fluid and the left pleural space contains 600 cc. of similar fluid. Adhesions are not present.

The pericardial space contains a few cc. of hemorrhagic liquid. Fibrinous adhesions largely obliterate the space. The diameters of the heart in situ are as follows: Greatest transverse diameter 17.0 cm., base to apex 14.0 cm., transverse diameter at the base 11.0 cm., and AP diameter 10.9 cm.

HEART:

The heart weighs 620 grams. The pericardium is covered by fibrinous adhesions. Sections through the myocardium reveal extensive degeneration, necrosis and softening of the left ventricular myocardium and the interventricular septum. There is moderate distention of the left ventricle most prominent at the apex. A mural thrombus lies in the apex of the left ventricle. Sections through the right ventricular myocardium reveal no abnormalities. The left ventricular myocardium averages 2.0 cm. in thickness at the base and 1.0 cm. at the apex. The sectional surfaces of the anterior left ventricular myocardium and I.V. septum are red mottled with foci of purple, yellow and grey. The left lateral and posterior ventricular myocardium at the base shows only congestion. The interventricular and interauricular septa are intact. Except for the left ventricle all chambers are of normal size. The valves are normal. The circumferences of the valves at the rings are as follows: pulmonic, 7.0, tricuspid 13.5, mitral 10.0 and aortic 7.0 cm. The auricular appendages are not remarkable. The right ventricular myocardium averages 7.0 to 8.0 mm. in thickness. Sections through the left coronary artery reveal total occlusion 2.0 cm. distal to the orifice. The occlusion lies distal to the bifurcation in the anterior descending branch. The lumen is occluded for a distance of 5.0 cm. Here, there is extensive calcification and uneven thickening of the wall. The lumen measures less than 1.0 mm. in diameter at some levels and is filled with a dense red-grey clot. Elsewhere the coronary arteries show focal athersclerosis, however, no areas of significant narrowing are identified. The right coronary artery shows moderate distention measuring 5.0 x 6.0 mm. in diameter.

LUNGS:

The right lung weighs 520 grams. The pleura is salmon-pink to red mottled with anthracotic pigment. The lower lobe pleura is discolored dark red to purple. There is marked decreased crepitus throughout the lower lobe and the dependent portions of the middle lobe. On section the surfaces are pale to dark red mottled with anthracotic pigment. Slight quantities of liquid exude from the parenchyma. The surfaces of the lower lobe are dark red to purple and dry. Bronchi and bronchioles are not remarkable. The arteries are not remarkable.

The left lung weighs 420 grams and is similar to the right.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable. The stomach contains a few cc. of mucus and liquid. The mucosal and rugal patterns are normal. The small bowel contains a small quantity of bile stained chyme. The large bowel contains gas and brown fecal matter. No abnormalities are noted in the bowel wall.

LIVER:

The liver weighs 1680 grams. The capsule is smooth, shiny and tan. On section there is accentuation of the lobular pattern. Hemorrhagic liquid exudes freely from all surfaces. The parenchyma bulges slightly beyond the capsule. The biliary radicles and portal vein are not abnormal.

The gallbladder contains thick green bile. The mucosa is normal. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 190 grams and is normal in shape, size, and consistency. Sections reveal no abnormalities.

GENITO-URINARY TRACT:

The right kidney weighs 190 grams. The capsule strips with ease revealing a smooth, shiny tan surface. An occasional irregular hemorrhagic focus is identified. On section these are triangular and extend into the parenchyma about 9.0 mm. (infarcts). The parenchyma bulges slightly beyond the capsule. The cortico-medullary line is sharp. The cortex measures 10.0 mm. in thickness and is tan. The medulla is purple. The calices, pelvis and ureter are normal.

The left kidney weighs 200 grams and is similar to the right.

The urinary bladder is empty and is not remarkable.

The prostate measures 5.0 x 4.0 x 4.0 cm. Sections reveal no abnormalities. The seminal vesicles contain thick grey-brown mucoid liquid.

SPLEEN:

The spleen weighs 290 grams. The capsule is dark red to purple. On section the parenchyma is red purple and is mottled with grey malpighian corpuscles. Infarct are not identified grossly.

LYMPH NODES:

Not remarkable.

BONE MARROW:

Samples taken from vertebra, ribs, sternum, and left iliac crest are not remarkable.

THYROID:

The right lobe of the thyroid contains a solitary nodular mass measuring 1.5 cm. in diameter. On section the surfaces are tan and show normal colloid sheen.

ADRENALS:

Not remarkable.

TESTES:

Not remarkable.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal extensive necrosis of the myocardium with beginning organization. Here, brown pigmented macrophages are abundant. Lymphocytes are lightly sprinkled about. In other areas the myocardium shows coagulative necrosis with beginning neutrophilic infiltration. Infarcts in varying stages of necrosis and healing are identified. The epicardial fat shows macrophagic and lymphocytic infiltration. Organizing fibrinous exudate covers the surface. Sections through the coronary arteries reveal extensive atherosclerosis. At some levels fibrino-cellular blood clot completely occludes the lumen. Hemorrhage beneath an atheroscleratic plaque is not present. The mural thrombus shows beginning organization.

Aorta:

Sections reveal slight atherosclerosis.

Lungs:

Sections reveal focal congestion with slight intra-alveolar hemorrhage. There is extensive atelectasis. Foci of uneven fibrous thickening of the pleura are present. Fragments of lymph node showing anthracosis and congestion are identified.

Liver:

Sections reveal moderate chronic passive congestion. Lymphocytes and neutrophils are lightly sprinkled about the distended sinusoids. The periportal fibrous tissue shows moderate lymphocytic infiltration. Some arteries and arterioles show slight intimal thickening.

Pancreas:

Sections reveal interlobular and interstitial fatty infiltration. Some arteries show slight to moderate thickening.

Bowel:

Sections reveal autolysis of the mucosa.

Kidneys:

The most significant alterations are the triangular shaped foci of degeneration and necrosis. Here, there is marked neutrophilic infiltration with congestion and interstitial hemorrhage. The necrosis is generally limited to the cortex. Elsewhere foci of lymphocytic infiltration are identified. An occasional hyalinized glomerulus is present. Some arteries and arterioles show intimal thickening. The tubular epithelium shows parenchymatous degeneration.

Prostate:

Sections reveal focal lymphocytic infiltration. Many of the glands contain corpora amylacea.

Testes:

Not remarkable except for slight thickening of the basement membranes of the seminiferous tubules. There is active spermatogenosis.

Thyroid:

Sections reveal a nodular thyroid. Some arteries and arterioles show intimal thickening.

Adrenals:

Not remarkable except for intimal thickening and hyalinization of some pericapsular arteries and arterioles. There is focal depletion of the cortical lipid.

Spleen:

Sections reveal depletion of the lymphoid element and red cells. The arteries and arterioles show intimal thickening and hyalinization.

Sternum:

Sections reveal intact periosteum. The cortex and trabeculae are composed of mature cancellous bone. The bone marrow shows granulocytic cell hyperplasia.

Vertebra:

Sections reveal intact periosteum. The cortex and trabeculae are composed of mature bone. The marrow shows granulocytic cell hyperplasia. There is some cystic degeneration of the intervertebral disc.

Rib:

Sections reveal intact periosteum. The cortex and trabeculae are not remarkable. The marrow is similar to that previously described.

Iliac Crest:

Sections reveal intact periosteum. The cortex and trabeculae are composed of mature delicate bone. The marrow is similar to that previously described.

CASE NO. 40

A-303-57

AGE: 55

DATE OF DEATH: May 22, 1957

DATE OF AUTOPSY: 10:00 a.m. May 24, 1957

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Mr. Robert V. Davis

CHIEF DIAGNOSIS:

1. Nodular silicosis of the lungs and lymph nodes, moderate to marked.
2. Right ventricular hypertrophy and dilation, marked, secondary to No. 1 above.
3. Cardiac fibrosis of the liver, slight to moderate, secondary to No. 2 above.
4. Lung abscess, right lower lobe.
5. Acute myocarditis, focal, secondary to No. 4 above.
6. Thrombosis of the right auricular appendage.
7. Pulmonary embolism, secondary to No. 6 above.
8. Infarcts of the spleen secondary to No. 6 above.
9. Nodular thyroid.

COMMENT:

The immediate cause of death in this case was the result of a combination of factors, the most important terminal episode was probably the combination of right ventricular hypertrophy with cardiac failure and the lung abscess.

The long standing nodular silicosis of the lung gave rise to the right ventricular hypertrophy and dilation. This was followed by heart failure and the development of cardiac fibrosis of the liver. The cardiac failure was probably of some duration as indicated by the fibrosis of the liver. The heart failure was followed by thrombosis of the right auricular appendage which in turn gave rise to the pulmonary embolism and splenic infarcts.

The acute myocarditis was focal and was secondary to the acute lung abscess.

Thus, the most important single lesion in this case was undoubtedly the nodular silicosis of the lungs which gave rise to a chain of events which eventually resulted in death, however, the terminal importance of the lung abscess should not be underestimated.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white man who appears younger than the stated age. It measures 71 inches in length and weighs an estimated 190 pounds. The scalp is covered by long black hair admixed with grey at the temples. Examination of the eyes and nasopharynx is precluded by embalming. The nares are not remarkable. The ear canals are dry. Embalming incisions are present in each axilla and in the right groin. The chest is barrel-shaped. A trocar wound is present just to the right of the umbilicus.

Superficial lymph nodes are not palpable. The external genitalia are essentially normal. The penis is circumsized. There is brownish discoloration of the skin of the right leg. Foci of dark brown discoloration measuring 1.0 to 3.0 cm. in diameter are present about the right shin. Ecchymoses are scattered about the arms, most marked in the left antecubital fossa. Needle puncture wounds are moderately abundant. A slightly elevated grey lesion (scar?) lies on the dorsum of the right hand. It measures about 3.0 x 4.0 cm. and shows innumerable foci of excoriation.

PRIMARY INCISION:

The usual Y-shaped incision reveals a 3.0 cm. layer of yellow lobulated fat over the lower midline. The musculature is dark red, well developed and moist.

SEROUS CAVITIES:

The peritoneal space contains a small amount of embalming fluid. The organs lie in normal relationship. The appendix is not remarkable. The right leaf of the diaphragm lies at the level of the 7th rib and the left leaf lies at the level of the 7th intercostal space. The liver does not extend beneath the costal cartilage. The spleen and the kidneys are enlarged to palpation. The ureters are not dilated.

The pleural spaces are largely obliterated by dense fibrous adhesions. These are most marked in the right side.

The pericardial space contains a few cc. of straw colored fluid containing flecks of fibrin. Small granular foci of fibrin are scattered about the pericardium, most marked at the base anteriorly. Petechial hemorrhages are scattered about the parietal pericardium at the apex. The heart is markedly enlarged and lies in a moderate transverse position.

HEART:

The heart weighs 640 grams. Sections reveal no significant abnormalities of the myocardium. There is marked right ventricular hypertrophy and dilation. The chamber is dilated an estimated three times normal size. The right ventricular myocardium measures 5.0 to 9.0 mm. in thickness and the left ventricular myocardium measures 10.0 to 15.0 mm. in thickness. There is hypertrophy of the papillary muscles and trabeculae in the right ventricle. The interventricular and interauricular septa are intact. The left auricle and ventricle are essentially normal. The right auricle shows marked distention. It is dilated an estimated two times normal size. The valves are grossly normal. The circumferences at the rings are as follows: pulmonic 10.5 cm., tricuspid 14.0, mitral 13.0 and aortic 9.0 cm. Densely adherent thrombi fill the lumen of the right auricular appendage. The left auricular appendage is not remarkable. Sections through the coronary arteries reveal only slight sclerosis. The aorta shows no significant abnormalities. The great vessels are similar.

LUNGS:

The right lung weighs 1780 grams. Fibrous adhesions obliterate the interlobular septa. These adhesions are most marked postero-laterally. The pleura over the lower lobe is grey and markedly thickened. Eslewhere, it is red to purple. There is decreased crepitus centrally, however, at the periphery there is marked increased crepitus. Innumerable hard nodular foci varying in size from 1.0 mm. to 1.0 cm. are scattered about. Calcific plaques lie within the pleura. These are irregular in shape and measure up to 2.5 x 1.0 x 0.1 cm. On section these nodular and plaque-like foci show extensive calcification and are pale to dark grey centrally and black at the periphery. The parenchyma of the lung is sectioned with great difficulty. Confluent nodular foci are not identified. There is moderate emphysema, most prominent at the periphery. Marked quantities of hemorrhagic liquid exude freely from the surfaces. The lower lobe is occupied by an abscess cavity measuring 13.0 cm. in the greatest diameter. The lumen contains thick fibrino-purulent exudate and gas. Strands of fibrin, vessels and bronchioles traverse the cavity. The lining is trabeculated, grey and is covered fibrinopurulent exudate. A distinct pyogenic membrane measuring up to 1.5 cm. in diameter lies between the lower and middle lobes. The wall measures only 1.0 mm. in thickness over the diaphragmatic surface. Elsewhere there is marked increased fibrosis throughout the parenchyma. The main stem pulmonary artery shows partial obliteration of the lumen due to a "saddle type" adherent clot which extends into both right and left arteries. An estimated 50% of the lumen is obliterated. The clot is densely adherent and removed with difficulty leaving a granular endothelium. The bronchi and bronchioles are filled with fibrino-purulent liquid. The mucosa shows marked hyperemia. Caseation necrosis is not identified grossly.

The left lung weighs 1220 grams. The pleura is grey to pale red mottled with anthracotic pigment. Nodular foci and plaques are scattered about. These are similar to those found on the right side. On section copious quantities of hemorrhagic liquid exudes freely from all surfaces. There is marked increased fibrosis. The left lung is similar to the right with the exception of the abscess cavity.

The trachea and larynx are filled with thick red-grey purulent liquid which effectively occludes the lumina. The mucosa is hyperemic.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable. The stomach contains a small quantity of undigested food and mucus. Bile stained liquid is scanty. String beans are identified within the stomach. The mucosal and rugal patterns are essentially normal. The small bowel contains bile stained chyme. The large bowel contains a small amount of brown fecal matter. No abnormalities are noted in the wall.

LIVER:

The liver weighs 1700 grams. The capsule is smooth, shiny and red-tan. At the periphery the margins are rounded and the capsule is thickened by fibrosis. On section there is marked accentuation of the lobular pattern. Hemorrhagic liquid exudes from all surfaces. The parenchyma bulges slightly beyond the capsule. The biliary radicles and portal vein are not remarkable.

The gallbladder contains a few cc. of green bile. The mucosa shows yellow discoloration. (cholesterolosis). The common and cystic ducts are patent.

PANCREAS:

The pancreas, associated fibro-fatty tissue and lymph nodes weigh 330 grams. The pancreas is normal in shape, color and consistency. Sections reveal no abnormalities. The peri-pancreatic nodes are markedly enlarged measuring up to 3.0 cm. in diameter. These are rock hard and on section are grey to yellow. Caseation necrosis is not identified grossly.

GENITO-URINARY TRACT:

The right kidney weighs 310 grams. The capsule strips with ease revealing a smooth, shiny lobulated red-tan surface. On section the parenchyma bulges beyond the capsule. The cortico-medullary line is sharp. The cortex averages 1.0 cm. in thickness and is red-tan. The medulla is purple. The calices, pelvis and ureter are not remarkable.

The left kidney weighs 290 grams and is identical to the right except for a few inclusion cysts. The largest measures 1.5 cm. in diameter.

The urinary bladder is empty. No significant abnormalities are noted on section

The prostate measures 4.0 x 4.0 x 3.5 cm. Sections reveal a grey homogeneous parenchyma without nodules. The seminal vesicles contain thick yellow-grey mucoid liquid.

SPLEEN:

The spleen weighs 580 grams. The surface is purple mottled with 1.0 to 3.0 mm. sized foci of nodular fibrosis. On section the parenchyma is dark red to purple mottled with Malpighian corpuscles. An irregular infarct measuring 1.5 cm. in diameter lies in the upper pole. The periphery is dark red and the central portion is yellow-orange. No other abnormalities are noted.

LYMPH NODES:

All lymph nodes examined show extensive enlargement. These vary in size measuring up to 5.0 cm. in diameter. The largest lies in the para-aortic chain in the mid-abdominal area. The capsules are grey to black. On section the surfaces are pale grey at the periphery and yellow to orange in the central portion. Many show extensive calcification. Distinct caseation necrosis is not identified grossly. The enlarged nodes include the hilar lymph nodes, peri-bronchial, mediastinal, hepatic and peri-pancreatic, peri-aortic.

BONE MARROW:

Samples taken from the ribs, sternum, vertebrae, and left iliac crest reveal no gross abnormalities.

THYROID:

Sections reveal several nodular foci measuring up to 1.5 cm. in diameter. The surfaces are red-tan and show a normal colloid sheen. No additional abnormalities are noted grossly.

ADRENALS:

Not remarkable.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal slight to moderate interstitial neutrophilic infiltration of the myocardium. This is most marked in the perivascular areas. A few lymphocytes and histiocytes are also identified. The pericardial fat shows similar inflammatory cell infiltration, most prominent in the perivascular areas. There is moderate to marked congestion of the pericardium with slight hemorrhage. Brown granular pigment lies in the perinuclear area of the myocardial fibers. There is only slight thickening of the coronary arteries. In some areas there is slight perivascular fatty infiltration. In areas where the inflammatory infiltrate is most marked, the myocardium shows degeneration and necrosis. Here, macrophages are identified as well as fatty metamorphosis. Sections through the wall of the right auricle reveal some interstitial fibrosis. The most significant alteration is the densely adherent blood clot which shows beginning peripheral organization.

Lungs:

Sections reveal emphysema, congestion, focal hemorrhage and innumerable nodular foci of fibrosis. These nodules are eosinophilic and resemble "watered silk". Some show beginning calcification. Caseation necrosis is not identified in any of the sections examined. The intra-alveolar septa show fibrous thickening. The foci of fibrosis contain pigmented macrophages. Pigmented macrophages are scattered about many of the alveoli and confluent air spaces. Some arterioles show slight thickenin

Some sections represent fragments of an abscess wall. Here, there is marked degeneration and necrosis of the histologic architecture. In some areas only ghosts of cells remain. The inner lining is composed of necrotic debris covered by thick fibrino-purulent exudate. Beneath the zone of necrosis is an area of compressed lung parenchyma showing fibrosis and moderate lymphocytic, neutrophilic and plasma cell infiltration. Here, there is marked increased vascularity with congestion and focal hemorrhage. In some areas the peribronchiolar lymphoid tissue shows complete replacement by dense hyalinized connective tissue similar to that previously described.

Sections through the bronchiolar lymph nodes reveal extensive replacement by nodular hyalinized connective tissue resembling "watered silk". Only ghosts of cell remain in some areas. Foci of calcification are scattered about. Small nodular foci resulting in confluent masses replace most of the lymph nodes. Caseation necrosis is not identified histologically.

Sections through the pulmonary artery reveal an adherent blood clot. There is no evidence of arteritis. The clot is fibrino-cellular and layered.

Ziehl-Neelsen stains are negative for acid fast organisms.

Lung and lymph nodes are markedly positive for silicon dioxide by the ashing technique.

Liver:

Sections reveal marked accentuation of the lobular pattern. The cord cells in the central zones show some atrophy. Here, there is increased interstitial fibrous tissue with thickening of the central veins. Many of the cord cells contain brown pigment. The periportal connective tissue is not remarkable, except for slight lymphocytic infiltration. The biliary radicles and arterioles are not remarkable. Occasional small groups of lymphocytes admixed with neutrophils are scattered about the sinusoids. There is distinct parenchymatous degeneration.

Pancreas:

Sections reveal slight fatty infiltration. Otherwise no significant abnormalities are noted.

Gallbladder:

Sections reveal far advanced autolysis.

Bowel wall:

Not remarkable.

Esophagus:

Not remarkable.

Kidneys:

Sections reveal far advanced parenchymatous degeneration. An occasional thick walled artery is identified. An occasional small lymphocytic aggregate lies subjacent to the capsule. An occasional cystic structure is present. These are lined by flattened epithelium and contain eosinophilic debris. The peripelvic fibro-fatty tissue is not abnormal. The epithelium is not remarkable.

Prostate:

Sections reveal essentially normal prostatic glands. A few contain corpora amylacea. There is slight lymphocytic infiltration within the musculature.

Thyroid:

Sections reveal a nodular focus composed of small to large follicles most of which contain colloid. The lining epithelium is of the cuboidal or columnar variety. In some areas the epithelium is multilayered. Occasional confluent follicles form colloid cysts.

Adrenals:

Not remarkable except for slight depletion of the cortical lipid.

Spleen:

Sections reveal focal degeneration and necrosis with hemorrhage and neutrophilic infiltration. This lesion results in destrubtion of the normal architectural pattern. Elsewhere, there is moderate congestion with some increased fibrosis. Neutrophils are lightly sprinkled about the sinusoids.

Sternum:

Sections reveal intact periosteum. The attached fat is not remarkable. The vessels are not significantly altered. The cortex and trabeculae are composed of mature delicate bone. There is marked hyperplasia of the cellular element of the marrow which almost totally replaces the fatty element.

Rib:

Sections reveal partially intact periosteum. The cortex and trabeculae are composed of mature bone. There is marked hyperplasia of the cellular element of the marrow. Fat cells are scanty.

CASE NO. 41

A-309-57

AGE: 69

DATE OF DEATH: 6-24-57

DATE OF AUTOPSY: 10:00 a.m., 6-25-57

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Mr. Robert V. Davis

CHIEF DIAGNOSIS:

1. Rupture of a dissecting aneurism of the ascending aorta, secondary to idiopathic cystic medial-necrosis of the aorta.
2. Hemopericardium, 600 cc. secondary to No. 1 above.
3. Myocardial degeneration, secondary to No. 1 above.
4. Interstitial hemorrhage of the soft tissues of the mediastinum, secondary to No. 1. above.
5. Nodular thyroid.
6. Cholelithiasis.
7. Lipoma of the anterior abdominal wall.
8. Pulmonary congestion and edema, slight.

COMMENT:

The immediate cause of death in this case was the direct result of the rupture o a dissecting aneurism of the ascending aorta. These lesions almost exclusively follo idiopathic cystic medionecrosis of the aorta. The etiologic factors involved in this lesion are not well understood.

The initial laceration of the intima and media probably occurred about five days prior to death according to history. The final rupture occurred immediately prior to death. The cardiac tamponade was undoubtedly the lesion of terminal importance.

The myocardial degeneration was secondary to the anoxemia which, in turn, resulted from the dissecting aneurism.

The other lesions were of no terminal significance.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white female who appears th stated age. It measures 63" in length and weighs an estimated 140 pounds. The scalp is covered by grey hair. Embalming precludes examination of the eyes and nasopharynx Embalming incisions are present in the base of the neck on the right side and in eac groin. Needle puncture wounds are scattered about the upper arms. The breasts are essentially normal to palpation. Ecchymoses are present on the lower legs and upper arms. Linea stria are scattered about the abdomen. The external genitalia are essen ially normal. The hair distribution is that of an adult female. The hands show distortion due to arthritis. A gold wedding band is present on the ring finger of th left hand. There are bilateral bunions. The lower legs show prominent varicosities and dark brown discoloration of the shins. There is moderate scoliosis in the thorac and lumbar areas. No other bony deformities are identified grossly.

CASE NO. 41

PRIMARY INCISION:

The usual Y-shaped incision reveals a 4.0 cm. layer of yellow lobulated fat. The musculature is not remarkable.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. The organs lie in normal relationship. Lying in the anterior abdominal wall outside of the peritoneum is an encapsulated soft, fatty tumor measuring 4.0 cm. in diameter. (lipoma). The internal organs of reproduction are not remarkable. The liver lies at the xiphoid process in the midline and extends 3.0 cm. beneath the costal cartilage in the right midclavicul line. The spleen is normal to palpation. The kidneys are normal to palpation and th ureters are not dilated. The right leaf of the diaphragm lies at the level of the fourth intercostal space and the left leaf lies at the level of the 6th rib.

The pleural spaces contain no excess of free fluid. A solitary fibrous adhesion lies in the left pleural space between the apical portion of the lower lobe and the lateral chest wall.

The pericardial space is markedly distended by blood. The peritoneal space contains 600 cc. of liquid and clotted blood. Fibrin lies over the visceral and parietal pericardium.

HEART:

The heart, pericardium, and ascending aorta weight 560 grams. The visceral pericardium shows attached fibrin. The fibro-fatty tissue at the base shows extensive interstitial hemorrhage. The myocardium is markedly soft and flabby, and can be penetrated with the finger easily. The left ventricular myocardium measures 1.5 cm. in thickness. The chambers are of normal size. The interventricular and interauricular septa are intact. The auricular appendages are not remarkable. The valves are grossly normal. The circumferences of the rings are as follows: pulmonic 7.5, tricuspid, 12.0, mitral, 11.0 and aortic 7.5 cm. Sections through the coronary arteries reveal moderate atherosclerosis, however, there are no areas of significant narrowing or occlusion identified. The coronary arteries measure up to 5.0 mm. in diameter. There is a fusiform aneurysmal dilation of the ascending aorta which measures 13.0 cm. in length and 12.0 cm. in circumference. Blood clot is attached to the surfaces in some areas. Lying 5.0 cm. distal to the aortic ring is a transverse laceration measuring 6.0 cm. in length. The laceration extends through the intima into the media. Dissection has taken place between the layers of the media for a distance of 4.0 cm. either side of the laceration. Extending superiorly from one extremity of this laceration is a second laceration measuring 5.0 cm. in length. Here, however, there is no dissection. The intima shows distinct rupture. The margins lie at least 1.0 cm. apar The larger laceration shows a 2.0 cm. gapping. There is some dissection inferiorly to involve the pericardial fat, surrounding the base and the anterior surface of the heart. Lying 4.0 cm. distal to the aortic ring is a perforation in the postero-lateral wall on the right side of the aorta which extends completely through all layers. Blood exudes freely from this perforation into the pericardial space.

The great vessels are not remarkable. Elsewhere, the aorta shows atherosclerosis becoming more marked as it is descended.

LUNGS:

The right lung weighs 430 grams. The pleura is salmon-pink to red mottled with anthracotic pigment. There is normal crepitus throughout all lobes. On section the surfaces are red to dark red. Small quantities of hemorrhagic liquid exudes freely from the surfaces. There is moderate congestion of the dependent portions of the lower lobe. The bronchi and bronchioles are not remarkable. The pulmonary artery shows slight to moderate arteriosclerosis.

The left lung weighs 310 grams and is similar to the right.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable. The stomach contains an estimated 100 cc. of undigested food and mucus. The mucosal and rugal patterns are normal. The small bowel contains bile stained chyme. The large bowel contains soft brown fecal matter. No abnormalities are noted in the bowel wall.

LIVER:

The liver weighs 1930 grams. The capsule is smooth, shiny and tan. On section the parenchyma bulges beyond the capsule. The lobular pattern is present. The parenchyma is moderately soft and friable. Hemorrhagic liquid exudes freely from the surfaces. The biliary radicles and portal vein are not remarkable.

The gallbladder is filled with thick bile and innumerable calculi of the mixed type. These measure up to 4.0 mm. in diameter and are dark green to brown. The common and cystic ducts are patent. Calculi are not identified within the common duct

PANCREAS:

The pancreas weighs 130 grams and is normal in shape, color and consistency. On section abnormalities are not identified grossly.

GENITO-URINARY TRACT:

The right kidney weighs 180 grams. The capsule strips with ease revealing a smooth, shiny tan surface. On section the cortico-medullary line is sharp. The corte is tan and measures 8.0 mm. in thickness. The medulla is purple. The calices, pelvi and ureter are not remarkable.

The left kidney weighs 170 grams and is similar to the right.

The urinary bladder contains 120 cc. of clear straw colored fluid. The uterus measures 8.0 x 5.0 x 3.0 cm. Sections reveal no gross abnormalities.

The fallopian tubes are not remarkable. The ovaries show senile atrophy and measure only 1.5 cm. in diameter. Sections reveal no abnormalities.

SPLEEN:

The spleen weighs 180 grams. The capsule is smooth, shiny and purple. On secti the parenchyma is soft, friable and is red-purple. The Malpighian corpuscles are easily visible grossly.

LYMPH NODES:

The tracheo-bronchial nodes measure up to 1.5 cm. in diameter. The surfaces are red-grey. No gross abnormalities are noted except for anthracosis.

BONE MARROW:

Samples taken from the sternum, sixth rib on the right, lumbar vertebra, and iliac crest reveal no abnormalities grossly.

THYROID:

The thyroid weighs 30 grams and is symmetrical. The surfaces are tan and show a normal colloid sheen. On section a 1.0 cm. sized nodule lies on one lobe. On section the surfaces are tan to grey. Elsewhere, the parenchyma is tan and shows a normal colloid sheen.

ADRENALS:

Not remarkable.

MICROSCOPIC DESCRIPTION

Heart:

There is moderate lymphocytic infiltration and interstitial hemorrhage of the pericardium and adjacent fat. Fibrin and blood clot are attached to the pericardial surface in some areas. The mesothelial cells show marked hyperplasia. Thick walled vessels are moderately abundant. Some show significant narrowing. The myocardium subjacent to the pericardium shows slight focal lymphocytic infiltration. There is focal fatty infiltration of the right ventricular myocardium. All sections show parenchymatous degeneration. There is focal perivascular and interstitial fibrous replacement of the myocardium.

Aorta:

Sections through the dissecting aneurism reveal extensive hemorrhage between the layers of the media. There is beginning organization at the periphery of the clot. Sections through the aortic wall adjacent to the aneurism reveal widening of the interspaces with destruction and loss of elastic fibers. There is infiltration of a homogeneous faintly blue staining hyaline substance. In some areas this results in microscopic cyst formation. In other areas there is distinct degeneration and necrosis with cyst formation. Here, lymphocytes are lightly sprinkled about and in some areas a few neutrophils are identified. At the margin of the aneurism there is distinct fibrosis with increased vascularity. Three-fourths of the media lies on the luminal side and one-fourth lies on the external side. The latter shows marked lymph cytic infiltration with increased fibrosis, fibrin deposition and increased vasculari

Lungs:

Sections reveal marked congestion, some intra-alveolar hemorrhage and slight ede No significant abnormalities are identified.

Liver:

Sections reveal some chronic passive congestion. The periportal connective tiss shows slight focal lymphocytic infiltration. Some of the arteries and arterioles sho intimal thickening. Small nests of neutrophils are lightly sprinkled about the sinusoids.

Pancreas:

Sections reveal slight focal interstitial fibrosis. Fat cells are lightly scattered about the parenchyma. Some arteries and arterioles show intimal thickening with hyalinization. Islet tissue is not remarkable.

Gallbladder:

Sections reveal far advanced autolysis.

Bowel:

Not remarkable.

Kidneys:

Sections reveal a few foci of lymphocytes scattered about the cortex. Here there is slight fibrosis with atrophy of tubular structures. Some arteries and arterioles show slight intimal thickening with hyalinization. Luminal narrowing is not significant. A few lymphocytes are scattered about the peripelvic fibro-fatty tissue.

Uterus:

Sections reveal marked interstitial and perivascular fibrosis. Thickened vessels are abundant. Some show total luminal obliteration. The endometrium is atrophic. Only an occasional gland is identified.

Thyroid:

Sections reveal a nodular thyroid. Many of the nodules show extensive fibrous replacement and hyalinization. Thick walled vessels are moderately abundant. There is no evidence of malignant change.

Adrenals:

Sections reveal slight to moderate depletion of the cortical lipid. Some pericapsular arteries and arterioles show intimal thickening and hyalinization.

Spleen:

Sections reveal marked congestion. The arteries and arterioles show intimal thickening and hyalinization. Neutrophils are lightly sprinkled about the sinusoids.

Sternum:

Sections reveal intact periosteum. The cortex and trabeculae are composed of mature cancellous bone.

Vertebra:

The periosteum is partially intact. Thickened vessels are moderately abundant. The cortex and trabeculae are composed of mature cancellous bone. There is some hyperplasia of the granulocytic cell series. The intervertebral disc shows basophilic degeneration.

Rib:

Sections reveal a partially intact periosteum. Skeletal muscle and fibro-fatty tissue is not remarkable. The cortex and trabeculae are composed of mature bone. The bone marrow is similar to that described in the vertebra.

Iliac Crest:

The periosteum is intact. The cortex and trabeculae are not remarkable. The marrow shows slight granulocytic cell hyperplasia.

CASE NO. 42

A-310-57

AGE: 76

DATE OF DEATH: 6:30 a.m. 6-27-57.

DATE OF AUTOPSY: 8:30 a.m. 6-28-57.

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Mr. Robert V. Davis.

CHIEF DIAGNOSIS:

1. Occlusion of the circumflex branch of the left coronary artery.
2. Myocardial infarction, old and recent, secondary to number 1 above.
3. Nodular silicosis of the lungs, lymph nodes and liver.
4. Varicose veins of the lower extremities, marked.
5. Absence of the right testis.
6. Inquinal hernia, right.
7. Arterio and arteriolar sclerosis, slight to marked.
8. Parenchymatous degeneration of the kidneys, marked.
9. Nodular hyperplasia of the prostate.

COMMENT:

The immediate cause of death in this case was the direct result of the occlusion of the circumflex branch of the left coronary artery with associated acute myocardial infarction. Adjacent to the recent infarct was an infarct showing healing. The older lesion was less than 30 days of age. The recent lesion represents an extension of an old infarct.

The nodular silicosis was of long standing and undoubtedly added to the final demise. The silicosis of the lymph nodes and the changes in the liver were secondary to the pulmonary silicosis. The pulmonary changes resulted in slight right ventricul hypertrophy, however.

The cystic changes in the kidney were most likely congenital in origin. The most significant alteration in the kidney, however, was the parenchymatous degeneration which probably resulted from anoxemia.

Lungs are positive for silicon dioxide crystals using ashing technics and polarized light.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white man who appears the stated age. It measures 65" in length and weighs 150 pounds. The scalp is covered b grey hair receding at the temples. Embalming precludes examination of the eyes and nasopharynx. The ear canals are dry and the nares are not remarkable. Innumerable ecchymoses are scattered about the arms, hands and legs. There are marked varicosite of the legs, most prominent in the left leg. The hair distribution is that of a normal adult male. An inguinal hernia on the right side measures 8.0 cm. in diameter The one testicle present shows no significant abnormalities. There are no bony abnormalities noted.

PRIMARY INCISION:

The usual Y-shaped incision reveals a 4.0 cm. layer of yellow lobulated fat. The musculature is dark red, well developed and moist.

SEROUS CAVITIES:

The peritoneal space contains no excess of free fluid. The organs lie in normal relationship. The appendix is retrocecal but is not otherwise abnormal. The liver does not extend beneath the costal cartilage. There is some gaseous distention of th stomach. The left kidney and spleen are normal to palpation. The right kidney is enlarged to palpation. The ureters are not dilated. The right leaf of the diaphragm lies at the level of the fifth intercostal space and the left leaf lies at the level of the sixth rib. About 200 cc. of straw colored fluid lies in the left pleural spac About 50 cc. of similar fluid lies in the right pleural space. A few adhesions are scattered about the subapical areas of both upper lobes. The lungs are well expanded.

The pericardial space contains about 20 cc. of liquid blood and blood clot. The heart is normal in shape and position.

HEART:

The heart weighs 410 grams. The pericardium over the lateral posterior surface of the left ventricle shows petechial hemorrhages. Elsewhere, it is not remarkable. Fat covers the base. The right ventricular myocardium averages 4 to 5 mm. in thicknes and the left ventricular myocardium measures 2.0 cm. in thickness. The chambers are of normal size. Sections through the myocardium reveal and area of necrosis of the left postero-lateral ventricular myocardium. This lesion measures 5.0 cm. in diameter Here, the wall measures 1.0 cm. in thickness and the myocardium is red to tan mottled with foci of yellow-orange and grey. The pulmonic and tricuspid valves are normal. There is some fibrous thickening of the leaflet of the mitral valve. The chordae tendinae are not remarkable. The aortic valve cusps show fenestration. The circumferences of the valves at the rings are as follows: pulmonic 10.0, tricuspid, 12.0, mitral 8.0 and aortic 8.0 cm. The auricular appendages and auricles show no significant abnormalities. Sections through the coronary arteries show marked atherosclerosi with significant luminal narrowing. Lying 3.0 cm. distal to the bifurcation of the left coronary in the circumflex branch is a complete occlusion. Here, the lumen is pi point in size and an adherent red-grey clot fills the lumen. No other areas of occlusion are identified. The aorta shows marked atherosclerosis becoming more prominent as it is descended. Innumerable foci of calcification are scattered about, as well as ulceration. The great vessels show less marked but similar changes.

LUNGS:

The right lung weighs 1160 grams. All lobes are firm. Fibrous adhesions are scattered about the grey to black pleura. Anthracotic pigment is abundant. Millimete to 5.0 mm. sized nodules are palpated throughout all lobes. On section the surfaces of the upper and middle lobes are pale red-grey. Copious quantities of hemorrhagic liquid exudes freely from the surfaces. The lower lobe surfaces are dark red to purpl The parenchyma is moderately dry. Nodular foci varying is size from 1.0 to 5.0 mm. are scattered about all lobes. On section these are pale to dark grey. The vessels stand open on section. The bronchi and bronchioles contain abundant quantities of mucus and grey-tan liquid.

The left lung weighs 940 grams. In the subapical portion of the upper lobe lies an irregular area of "honey combing". Here, adhesions are scattered about the pleura. Nodular foci of fibrosis are plentiful. Otherwise, the left lung is similar to the right.

GASTRO-INTESTINAL

The esophagus is not remarkable. The stomach contains gas and a small quantity of mucus. The mucosal and rugal patterns are normal. The small bowel contains bile stained chyme. The larger bowel contains a small quantity of liquid brown fecal matter. No abnormalities are noted in the bowel wall.

LIVER:

The liver weighs 1400 grams. The capsule is smooth, shiny and is tan mottled with foci of grey and purple. (uneven embalming?). On section the lobular pattern is somewhat accentuated. The parenchyma cuts with increased resistance and bulges slightly beyond the capsule. Irregular foci of grey are scattered about.

The biliary radicles and portal vein are not remarkable.

The gallbladder measures 10.0 cm. in length and 5.0 cm. in diameter. The lumen contains thick green bile. The mucosa is dark green. The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 180 grams and is normal in shape, color and consistency. On section the lobular pattern is present. No gross abnormalities are noted.

GENITO-URINARY TRACT:

The right kidney weighs 230 grams. The capsule strips with ease revealing a smooth, shiny tan surface bearing a few cysts measuring up to 1.0 cm. in diameter. Protruding from renal parenchyma adjacent to the pelvis is a cystic structure measuring 5.0 cm. in diameter. It contains pale straw colored uriniferous liquid. The inne lining is smooth, shiny and grey. Section elsewhere reveals a sharp cortico-medullary line. The parenchyma bulges beyond the capsule. The cortex averages 8.0 to 9.0 mm. in thickness and is tan. The medulla is purple. The pelvis, calices and ureter are not remarkable.

The left kidney weighs 150 grams. The capsule strips with ease revealing a smooth, shiny, tan surface, bearing an occasional occlusion cyst. On section the cortico-medullary line is sharp and the cortex is pale red to tan and measures 8.0 to 9.0 mm. in thickness. The medulla is purple. The calices, pelvis and ureter are normal.

The urinary bladder contains a few blood clots. There is marked hyperplasia of the median lobe of the prostate. On section the prostate measures 7.0 x 6.0 x 4.0 cm. Innumerable nodular foci varying in size from 1.0 mm. to 1.5 cm. are scattered about. The surfaces vary in color from grey to pale tan.

SPLEEN:

The spleen weighs 130 grams. The capsule is dark red to purple. On section the parenchyma is soft and friable. The Malpighian corpuscles are visible grossly.

LYMPH NODES:

There is some enlargement of the tracheo-bronchial, peripancreatic and periaorti lymph nodes. These measure up to 2.0 cm. in diameter and show moderate increased fibrosis. On section the surfaces are dark grey to black mottled with pale grey.

BONE MARROW:

Sections taken from the sixth rib on the right, sternum, lumbar vertebra, and the left iliac crest show no gross abnormalities.

THYROID:

The thyroid weighs 30 grams. The surfaces are grey-tan and show a normal colloic sheen. No gross abnormalities are noted.

ADRENALS:

Not remarkable.

TESTICLE:

The single testis measures 3.0 x 2.0 x 2.0 cm. and is firm. On section the parenchyma is tan. The seminiferous tubules string out in the usual fashion.

MICROSCOPIC DESCRIPTION

Heart:

The myocardium reveals extensive degeneration, necrosis, neutrophilic infiltratic congestion and interstitial hemorrhage. In other areas there is distinct coagulative necrosis of the myocardium with loss of the cross striations. In this immediate vicini there is extensive replacement of the myocardium by young connective tissue showing congestion and macrophagic infiltration. An occasional lymphocyte is identified. Her there is increased vascularity. At the margins of these lesions there is slight fatty infiltration and fatty metamorphosis. Some arteries and arterioles show intimal thickening with almost total lumanal obliteration. Sections through the coronary artery reveal marked atherosclerosis with significant lumenal narrowing. An unattached clot lies within the remaining lumen.

Aorta:

Sections reveal far advanced atherosclerosis with focal calcification.

Lungs:

Sections reveal moderate emphysema, focal fibrosis and marked brown pigmented macrophagic infiltration. The latter is most marked in the peribronchiolar areas. There are congestion and slight edema. Irregular nodular foci are scattered about. The central portions are eosinophilic and resemble "watered silk". Surrounding these hyalinized foci is a zone of dense connective tissue showing marked deposition of brow to black pigmented macrophages. Here, vascular spaces are abundant and an occasional lymphoid aggregate is identified. The adjacent alveolar septa show fibrous thickening. Some arteries and arterioles show intimal thickening and hyalinization.

Liver:

Sections reveal some chronic passive congestion. The periportal connective tissu shows slight lymphocytic infiltration. An occasional nodular focus of fibrosis showin lymphocytic infiltration is identified within the liver parenchyma. These lie adjacent to the periportal connective tissue. An occasional multinucleated giant cell is identified. Brown to black pigmented macrophages are abundant. These giant cells are bizarre and show innumberable nuclei and are not typically Langhan cells. There is no evidence of caseation necrosis. There is marked uneven fibrous thickening of the liver capsule. There is focal subcapsular lymphocytic infiltration with some hyalinization.

Pancreas:

Sections reveal fatty infiltration. Some arteries and arterioles show intimal thickening and hyalinization.

Gallbladder:

Sections reveal autolysis.

Kidneys:

Sections reveal marked parenchymatous degeneration. In some areas there is uneven thickening of the capsule. Cystic spaces are identified. In other areas there is slight interstitial fibrosis with atrophy and fibrosis of the glomeruli and associated tubular structures. Many arteries and arterioles show intimal thickening with hyalinization. Some show almost total lumenal obliteration. Occasional nests of lymphocytes are scattered about. The peripelvic structures are not abnormal except for the intimal thickening of the arteries and arterioles.

Prostate:

Sections reveal marked nodular hyperplasia. Lymphocytes are lightly sprinkled about some areas.

Testes:

Sections reveal some tubular atrophy with fibrous thickening of the basement membranes. There is active spermatogenesis.

Thyroid:

Sections reveal no abnormalities, except for intimal thickening of the arteries and arterioles.

Adrenals:

Sections reveal moderate depletion of the cortical lipid. The pericapsular arteries and arterioles show intimal thickening and hyalinization. Some show almost total luminal obliteration.

Spleen:

Sections reveal marked congestion. The arteries and arterioles show intimal thickening and hyalinization.

Lymph Nodes:

Tracheo-bronchial lymph nodes show marked anthracosis. There is some distortion of the histologic architecture due to nodular foci composed of hyalinized connective tissue resembling "watered silk". Tubercules are not identified in any of the nodes examined.

Sternum:

Sections reveal an intact periosteum.. The cortex and trabeculae are composed of mature delicate bone. The marrow shows granulocytic cell hyperplasia.

Vertebra:

Sections reveal intact periosteum. The cortex and trabeculae are composed of delicate bone. There is hyperplasia of the granulocytic cell series. The intervertebral disc shows basophilic degeneration.

Rib:

Periosteum is absent. A small amount of skeletal muscle is present. No significant abnormalities are noted. The cortex and trabeculae are not remarkable. The marrow is similar to that previously described.

Iliac Crest:

The periosteum is partially intact. The attached muscle and fibro-fatty tissue reveal no abnormalities. The cortex and trabeculae are not remarkable. The marrow shows only focal granulocytic cell hyperplasia.

CASE NO. 43:

AV-312

AGE: 58

DATE OF DEATH: 11:25 a.m., 7-3-57

DATE OF AUTOPSY: 11:30 a.m., 7-4-57

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Robert V. Davis

CHIEF DIAGNOSIS:

1. Thrombocytopenic purpura. (Clinical Diagnosis)
2. Cerebral hemorrhage, extensive, recent, secondary to No. 1 above.
3. Pulmonary hemorrhage, secondary to No. 1 above.
4. Transitional cell carcinoma of the urinary bladder, remote.
5. Absence of the urinary bladder with anastamosis of the ureters to the distal sigmoid colon, secondary to No. 4 above.
6. Gastro-intestinal hemorrhage, moderate, secondary to No. 1 above.
7. Cirrhosis of the liver, slight to moderate.
8. Ecchymoses and petechial hemorrhages, secondary to No. 1 above.

COMMENT:

The immediate cause of death in this case was due to the thrombocytopenic purpura and its attendant complications. The most severe was the recent extensive cerebral hemorrhage. It was impossible to ascertain with certainty whether the thrombocytopenic purpura was of the idiopathic type or secondary to sulfa drug or chloromycetin, both of which the patient received shortly before death. Laboratory findings were compatible with the clinical diagnosis of thrombocytopenic purpura.

The blood found within the trachea, bronchi and bronchioles may have arisen from the lungs or aspirated from the stomach. It undoubtedly resulted in terminal asphyxiation.

A total resection of the urinary bladder was done on 3-28-57 for a transitional cell carcinoma. At this time the ureters were anastomosed to the colon. The uretero-colonic anastromosis were intact and apparently functioning. There was no evidence of infection. Residual tumor tissue was not identified either histologically or grossly.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white female who appears the stated age. It measures 58" in length and weighs an estimated 110 lbs. The scalp is covered with long brown hair. Examination of the eyes and nasopharynx is precluded by embalming. The preorbital tissues show marked blue-black discoloration bilaterally. Serous liquid exudes freely from the nares. An excoriation covered by blood clot and measuring 2.0 cm. in diameter lies on the upper lip. A similar but smaller excoriation lies on the lower lip. Petechial hemorrhages are scattered about the skin of the body, most marked over the trunk. Ecchymoses surround the needle puncture wounds in the forearms, arms and anticubital fossa. An ecchymotic area surrounds the sternal bone marrow puncture site. Similar ecchymotic areas are scattered about the legs and ankles. The hair distribution is that of an adult female. The external genitalia are not remarkable. A Pfannenstiel incisional scar lies in the lower abdominal wall. Petechial hemorrhages are scattered about the scar. There are no bony abnormalities noted grossly.

Primary Incision:

The usual "Y" shaped incision reveals a 1.0 x 5.0 cm. layer of yellow lobulate fat. Foci of interstitial hemorrhage are scattered about. The largest surrounds the sternal bone marrow puncture site. The musculature is dark red, well developed and moist.

Serous Cavities:

Fibrous adhesions are scattered about the peritoneal space, most marked in the pelvis. The urinary bladder is absent. The uterus, fallopian tubes and ovaries are densely adherent to the floor of the pelvis. Residual tumor tissue is not identified. Both ureters are anastomosed to the terminal sigmoid just proximal to the peritoneal reflection. The appendix is present and is not remarkable. The spleen and kidneys are normal to palpation. The liver extends 2.0 cm. beneath the costal cartilage in the right mid-clavicular line. The right leaf of the diaphragm lies at the level of the fourth intercostal space and the left leaf lies at the leve of the fifth rib. The pleural space contains a few cc. of straw colored fluid. The heart is normal in contour and position.

HEART:

The heart weighs 250 grams. Sections through the myocardium reveal no significant abnormalities. There is interstitial hemorrhage of the fat surrounding the base of the heart. The chambers are of normal size. The valves are normal. The circumference of the valves at the rings are as follows: pulmonic 7.0 cm., tricuspi 10.0 cm., mitral 8.0 cm., aortic 7.0 cm. The auricular appendages are essentially normal. The coronary arteries reveal no abnormalities. The great vessels show no significant abnormalities. The aorta shows slight atherosclerosis becoming more prominant as it is descended.

LUNGS:

The right lung weighs 570 grams. The pleura is salmon-pink mottled with anthracotic pigment. Over the dependent portions of the lower and middle lobes the pleura is purple. On section foci of hemorrhagic discoloration are abundant. These lesions are more firm than the remaining lung parenchyma. Copious quantities of hemorrhagic liquid exudes freely from the surfaces. The bronchioles and bronchi are filled with blood which effectively occludes the lumens.

The left lung weighs 320 grams and is similar to the right. The trachea is filled with blood.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable. The stomach contains a few cc. of mucus admixed with blood. The small bowel contains bile stained chyme admixed with a small quantity of blood. The large bowel contains soft brown fecal matter admixed with black tarry substance.

LIVER:

The liver weighs 1230 grams. The capsule is smooth, shiny and red to tan. The lobular pattern is accentuated and is visible through the capsule. A solitary hemangioma measuring 1.0 cm. in diameter lies over the lateral aspect of the right lobe. On section the parenchyma bulges markedly beyond the capsule. The lobular pattern is visible and is slightly accentuated in some areas. The portal vein and biliary radicles are not remarkable.

The gallbladder contains a few cc. of green bile. The mucosa and wall are normal.

The common and cystic ducts are patent.

PANCREAS:

The pancreas weighs 110 grams. It is normal in shape, color and consistency.

GENITO-URINARY TRACT:

The right kidney weighs 165 grams. The capsule strips with ease revealing a smooth, shiny tan surface bearing a solitary inclusion cyst measuring 5.0 mm. in diameter. On section the parenchyma bulges slightly beyond the capsule. The cortico-medullary line is sharp. The cortex is tan and measures 9.0 mm. in thickness and the medulla is purple. The calices and pelvis are normal except for focal petechial hemorrhages. The left kidney weighs 160 grams and is similar to the right.

URETERS:

Both ureters show slight distention in the distal one-half. Here, the diameter measures up to 1.5 cm. There is extensive hemorrhage into the wall most marked on the right side. This is most prominent in the distal one-half and extends from the brim of the true pelvis to the uretero-colonic anastomosis. The distal one-half of both the ureters is filled with a turbid yellow-orange liquid. The wall measures up to 2.0 mm. in thickness. The lumens are patent throughout. The uretero-colonic anastomosis are intact. Each orifice freely admits a 5.0 mm. probe with ease

SPLEEN:

The spleen weighs 150 grams. The capsule is red-purple. On section the parenchyma is moderately firm. The malpighian corpuscles are visible grossly. An accessory spleen measuring 2.0 cm. in diameter lies at the tail of the pancreas.

THYROID:

The thyroid weighs 15 grams and shows no gross abnormalities.

ADRENALS:

Not remarkable.

OVARIES:

Not remarkable.

CASE NO: 43

GENITAL TRACT:

The uterus is densely adherent to the floor of the pelvis. It measures 8.0 cm. by 4.0 x 2.5 cm. Dense fibrous adhesions surround the fundus and the body of the uterus. The cervix is covered with pearly grey epithelium. The endocervical canal freely admits a 5.0 mm. probe. On section the myometrium measures 1.5 cm. in thickness. It shows no significant abnormalities. The endometrium measures 1.0 mm. in thickness and is grey to pale-red. Sections reveal no abnormalities in the cervix except for a few cystic structures. The proximal portion of the vaginal wall reveals no abnormalities. Residual tumor tissue is not identified.

HEAD:

There are no abnormalities noted in the head or calvarium. The meninges are intact. The paranasal sinuses contain liquid blood. The mastoid air cells and middle ears are not remarkable.

BRAIN:

The brain weighs 1250 grams. There is extensive subdural and subarachnoid hemorrhage. The hemispheres are symmetrical. Sections through the cerebral hemispheres reveal extensive degeneration and hemorrhagic necrosis of the white matter of the right hemisphere. It extends to the mid-line but does not involve the left hemisphere. The walls of the ventricle on the right side show extensive softening, degeneration and necrosis. All ventricles are filled with liquid blood. The site of hemorrhage is undetermined grossly. Sections through the cerebellum and brain stem reveal no additional abnormalities.

BONES:

No additional abnormalities are noted in the bones. Specimens taken from the sternum, rib, vertebra and left iliac crest reveal no significant abnormalities. The marrow is pale red.

MICROSCOPIC DESCRIPTION

Heart:

Sections reveal extensive interstitial hemorrhage of the pericardium. Some of the arteries show moderate atherosclerosis. There is some myocardial degeneration with vacuolization of fibers. The fibers contain brown pigment adjacent to the nuclei. Sections through the right ventricular myocardium reveal moderate fatty infiltration. There is slight focal perivascular fibrosis.

Lungs:

Sections reveal marked congestion with extensive hemorrhage. Other sections reveal slight emphysema. Brown pigmented macrophages are scattered about the alveoli. The pleura shows focal anthracosis.

Trachea:

Sections reveal slight subepithelial lymphocytic infiltration.

Liver:

Sections reveal accentuation of the periportal connective tissue. In some areas bands of fibrous tissue connect the triads. There is similar fibrosis surrounding the central veins. Lymphocytes are lightly sprinkled about. In some areas the biliary radicles show multiplication.

Pancreas:

Sections reveal slight fatty infiltration.

Gallbladder:

Sections reveal advanced autolysis.

Kidneys:

Sections reveal slight focal lymphocytic infiltration and slight interstitial fibrosis. The adjacent tubules show atrophy. An occasional hyalinized glomerulus is identified. There is congestion and slight focal interstitial hemorrhage. Some arteries and arterioles show slight intimal thickening. Lymphocytes are lightly sprinkled about the peripelvic areolar tissue. One section shows a retention cyst lined by tubule-like epithelium.

Sections through the ureters reveal extensive congestion with interstital hemorrhage. At one level the transitional cell epithelium is intact.

Uterus:

Sections reveal no abnormalities in the myometrium except for thickened vessels. The endometrium is atrophic. Sections through the cervix and vagina reveal no significant abnormalities. Residual tumor tissue is not identified.

Spleen:

Sections reveal depletion of the red pulp. The arteries and arterioles show slight intimal thickening and hyalinization .

Lymph Nodes:

Not remarkable.

Adrenals:

Not remarkable.

Pituitary:

Sections reveal far advanced autolysis.

Thyroid:

Not remarkable.

Brain:

Sections reveal extensive congestion with interstitial hemorrhage, degeneration and necrosis. Inflammatory cells are scanty.

CASE NO: 43

Sternum:

The periosteum is intact and shows no significant abnormalities. The cortex and trabeculae are composed of cancellous mature bone. Decalcification is incomplete. The marrow is composed predominantly of fat.

Vertebra:

The periosteum is intact. Thickened vessels are present. The cortex and trabeculae are composed of mature cancellous bone. The marrow is composed primarily of fat tissue. Cellular marrow is extremely scanty. An occasional lymphoid aggregate is identified. There is some basophilic degeneration of the intervertebral disc.

Rib:

The periosteum is not remarkable. The attached skeletal muscle is essentially normal. The cortex and trabeculae are not remarkable. The marrow is similar to that previously described. Cellular marrow is extremely scanty.

Iliac Crest:

The periosteum is intact over most of the cortex. The cortex and trabeculae are compoased of mature delicate bone. The marrow is similar to that previously described.

CASE NO: 44

A-316-57

AGE: 61

DATE OF DEATH: 7-26-57, 5:40 p.m.

DATE OF AUTOPSY: 7-27-57, 6:00 a.m.

PROSECTOR: Richard A. Call, M. D.

ASSISTANT: Mr. Robert V. Davis

CHIEF DIAGNOSIS:

1. Paralytic ileus (clinical diagnosis)
2. Purulent peritonitis, focal.
3. Rheumatic type deformity of the aortic valve (stenosis, marked).
4. Non-bacterial thrombotic endocarditis of the aortic valve.
5. Pulmonary congestion and edema.
6. Acute infarcts of the right kidney, secondary to No. 4 above.
7. Acute suppurative appendicitis with rupture, recent, followed by evisceration.

COMMENT:

The immediate cause of death in this case was undoubtedly due to a combination of factors. The most important was the paralytic ileus which followed the removal of a ruptured appendix. The acute peritonitis was of moderate degree and focal, however, it significantly aided in the final demise. This, plus the prolonged paralytic ileus was certainly sufficient to have caused death.

The stenosis of the aortic valve was of the rheumatic type and of marked degree. The chronic passive congestion of the liver and pulmonary congestion indicates some degree of cardiac failure. The non-thrombetic bacterial endocarditis was a terminal event and was incidental only. Its greatest importance was the resultant infarct of the kidney. This type of endocarditis is generally associated with the debilitating illnesses and cachexia.

GENERAL DESCRIPTION:

This is the body of a well developed, well nourished white man who appears the stated age. It measures 68 inches in length and weighs an estimated 170 pounds. The scalp is covered with brown hair showing receding at the forehead. There is greyish discoloration at the temples. Embalming incisions are present at the base of the neck on the right side and in the left groin. Needle puncture wounds surrounded by ecchymoses are scattered about the arms and right antecubital fossa. A well healed scar lies in the right upper quadrant of the abdomen. It measures 13.0 cm. in length and connects with a recent right rectus incisional wound measuring 18.0 cm. in length. The latter wound lies in the right rectus area. The hair distribution is that of an adult male. The left testis is atrophied and the right is not remarkable. An embalmer's "button" lies in the left upper quadrant of the abdomen. Calluses partially cover each knee. Bony abnormalities are not identified on external examination.

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PRIMARY INCISION:

The usual "Y" shaped incision reveals a 4.0 cm. layer of yellow lobulated fat in the lower midline. The musculature is dark red, well developed and moist.

SEROUS CAVITIES:

The peritoneal space contains a small quantity of straw colored liquid and fibrin. The bowel is adherent one loop to another by fibrino-purulant exudate. In some areas the small bowel measures up to 15.0 cm. in diameter. The serosa is smooth, shiny and pale red to red-purple. There is no evidence of diffuse peritonitis. Free purulent liquid is not present within the abdominal cavity. A few fibrinous adhesions lie between the bowel and the incision in the anterior abdominal wall. An abscess cavity measuring about 3.0 cm. in diameter lies external to the peritonium within the incisional wound. The greater omentum lies in the right upper quadrant. The cecum shows marked distention, measuring 17.0 cm. in diameter. The site of the previous appendectomy is not remarkable. There is no evidence of bowel obstruction. The large bowel is of normal size and shape. The liver does not extend beneath the costal border. The spleen and kidneys are normal to palpation. The ureters are not dilated. The right leaf of the diaphragm lies at the level of the fourth intercostal space and the left leaf lies at the level of the fifth rib.

The pleural spaces contain no excess of free fluid. Adhesions lie between the subapical area of the lower lobe and the lateral chest wall. Similar fibrous adhesions lie between the diaphragmatic surface of the lower lobe and the diaphragm.

The pericardial space contains a few cc. of straw colored fluid. The pericardium is essentially normal. The heart is normal in contour and position.

HEART:

The heart weighs 380 grams. Sections through the myocardium reveal no abnormalities. The right ventricular myocardium averages 3.0 to 4.0 mm. in thickness and the left ventricular myocardium measures 1.5 to 2.0 cm. The interventricular and interauricular septa are intact. All valves are grossly normal except the aortic which shows moderate to marked stenosis resulting in a "fish-mouth" opening. The orifice measures 1.0 cm. x 2.0 mm. There is marked fibrous thickening of the leaflets with fusion of the cusps. Calcific excrescences are scattered about the leaflets. These lie on the aortic side. Lying on the right postero-lateral cusp and almost completely filling the sinus of Valsalva, is a vegetation which is densely adherent to the previously described calcific excrescence. This lesion measures 1.5 cm. in diameter and is moderately soft and friable. Grossly, it resembles blood clot. The coronary arteries reveal no significant abnormalities. The aorta shows only slight atherosclerosis in the abdominal portion.

LUNGS:

The right lung weighs 730 grams. There is some decreased crepitus throughout all lobes. The pleura is dark red to purple. Fibrous adhesions are scattered about the apex of the lower lobe and the adjacent interlobar fissure. On section the surfaces vary in color from pale red to dark purple. Copious quantities of hemorrhagic liquid exude freely from the surfaces. Lying just subjacent to the fibrous adeesions over the apical portion of the lower lobe is an area of "honey coming" of the lung parenchyma. These cysts measure up to about 5.0 mm. in diameter. The bronchi and bronchioles are not remarkable. The pulmonary artery shows only slight atherosclerosis.

The left lung weighs 750 grams. With the exception of the fibrous adhesions it is similar to the right.

GASTRO-INTESTINAL TRACT:

The esophagus is not remarkable. The stomach contains a few cc. of mucus and bile stained liquid. The mucosal and rugal patterns are not remarkable. A peptic ulcer is not identified. The duodenum contains a small quantity of bile stained liquid. The remainder of the small bowel shows marked distention by gas and thin brown liquid. In many areas the bowel measures up to 15.0 cm. in diameter. The bowel wall varies in color from pale red to dark red-purple. Here, the mesentery is moderately soft and friable. The associated arteries and veins show no significant alteration. The mucosa is not remarkable. No additional abnormalities are noted in the bowel wall. The cecum shows no significant abnormalities except for marked distention. (17.0 cm). The large bowel contains soft brown fecal matter. The site of the removal of the appendix is not remarkable. There is no evidence of wound breakdown.

LIVER:

The liver weighs 1780 grams. The capsule is smooth, shiny and tan. On section the lobular pattern is identified. The parenchyma bulges moderately beyond the capsule. The parenchyma is soft and friable. The biliary radicles and portal vein are not remarkable.

The gallbladder contains thick tenacious mucoid green bile. The wall measures up to 1.0 mm. in thickness. The mucosa is not remarkable. The common and cystic ducts are patent.

PANCREAS:

The pancreas weight 120 grams. On section there is slight fatty infiltration. No other abnormalities are noted grossly.

GENITO-URINARY TRACT:

The right kidney weighs 170 grams. The capsule strips with slight difficulty revealing a congested and slightly granular surface. A solitary wedge-shaped area of infarction measures 1.5 cm. in its greatest dimension. On section the surface shows hemorrhagic discoloration. Elsewhere, the cortico-medullary line is sharp. The cortex averages 9.0 mm. in thickness and is tan. The medulla is purple. The parenchyma bulges moderately beyond the capsule. The calices, pelvis and ureter are essentially normal.

The left kidney weighs 150 grams. The capsule strips with ease revealing a slightly granular tan surface. There is no evidence of infarction in the left kidney. Otherwise, this kidney is similar to the right.

The urinary bladder is empty. The wall is not remarkable and the mucosa is intact.

The prostate measures 4.5 x 4.0 x 4.0 cm. in its greatest dimension. On section a few nodular foci project above the adjacent tissue.

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THYROID:

Not remarkable.

ADRENALS:

Not remarkable.

TESTES:

The right testis is not remarkable. The left is atrophic measuring only 1.5 cm. in its greatest diameter. On section the parenchyma is tan to brown. The tubules do not string out in the usual fashion.

SPLEEN:

The spleen weighs 210 grams. The capsule is red-purple, smooth and shiny. On section the parenchyma is soft and is purple mottled with grey Malpighian corpuscles.

LYMPH NODES:

Not remarkable.

BONE MARROW:

The samples taken from the rib, sternum, vertebra and left iliac crest reveal no significant abnormalities.

MICROSCOPIC DESCRIPTION

Heart:

Sections through the myocardium reveal some thickening of the arteries and arterioles. One coronary artery shows marked thickening with medial calcification. Some sections show brown granular pigment, lying within the myocardial fibers adjacent to the nuclei. The most significant alteration is the extensive thickening with fibrosis, hyalinization and calcification of the aortic valves. At the base of the valve the myocardium show fibrosis and fatty infiltration. In some areas there is beginning bone formation. There is marked increased vascularity. In some areas a few lymphocytes are identified. Attached to one portion of the valve is a fibrino-cellular thrombus. It is densely adherent and is distinctly layered. There is no evidence of organization. The thrombus is composed of brown pigmented macrophages disintegrating white cells, platelets and fibrin.

Sections through the aorta reveal some atherosclerosis.

Lungs:

The most significant alteration is marked congestion with extensive intra-alveolar hemorrhage. There are moderate emphysema, anthracosis, and slight focal edema. One fragment shows marked fibrous thickening of the intra-alveolar septa. Here, confluent air spaces are abundant. These structures contain pigmented macrophages, Moderate numbers of lymphocytes infiltrate the fibrous septa. The bronchi and bronchioles are not remarkable. There is slight thickening of some of the arteries.

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Liver:

Sections reveal chronic passive congestion. The periportal connective tissue shows slight to moderate lymphocytic infiltration. The arteries and arterioles are not remarkable. There is some degeneration of the liver cord cells in the central zone.

Pancreas:

Sections not remarkable except for slight fatty infiltration. Islet tissue is abundant.

Bowel walls:

Several levels of the bowel wall show neutrophilic infiltration throughout all layers. Plasma cells are moderately abundant and eosinophils are plentiful. At some levels fibrino-purulent exudate is attached to the serosal surfaces. There is moderate to marked congestion, focal interstitial hemorrhage and moderate interstitial edema.

Kidneys:

Sections reveal some thickening of the capsules. Small foci of atrophy and fibrosis with lymphocytic infiltration lie within the cortex just subjacent to the capsule. There is moderate congestion. Some arteries and arterioles show slight thickening.

Prostate:

Sections reveal nodular hyperplasia.

Thyroid:

Sections reveal focal lymphocytic infiltration. No significant abnormalities are noted.

Adrenals:

Sections reveal depletion of the cortical lipid.

Spleen:

Sections reveal moderate to marked congestion with depletion of the lymphoid element. An occasional neutrophil lies within the sinusoids. The arteries and arterioles show moderate intimal thickening and hyalinization.

Sternum:

Sections reveal normal intact periosteum and adjacent fat and connective tissue. The cortex is intact and shows no abnormalities except for uneven decalcification. The trabeculae are composed of mature delicate bone. There is granulocytic cell hyperplasia of the bone marrow.

Vertebra:

The periosteum is intact. The intervertebral disc shows focal basophilic degeneration. The cortex and trabeculae are composed of mature delicate bone. The marrow shows granulocytic cell hyperplasia.

Rib:

Sections reveal intact periosteum. The attached skeletal muscle and fat show no abnormalities. The cortex and trabeculae are composed of mature bone. The marrow shows granulocytic cell hyperplasia.

Iliac Crest:

Sections reveal intact periosteum. The attached fat and muscle show no abnormalities. The cortex and trabeculae are composed of mature bone. The bone marrow is not remarkable.